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REVISED FINAL SITE ASSESSMENT AND CHARACTERIZATION OF RECREATIONAL  
VEHICLE FAMILY CAMPING AREA NAS FORT WORTH TX  
3/1/1999  
THE ENVIRONMENTAL COMPANY



**NAVAL AIR STATION  
FORT WORTH JRB  
CARSWELL FIELD  
TEXAS**

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**ADMINISTRATIVE RECORD  
COVER SHEET**

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Revised Final Report  
Site Assessment and Characterization  
of the Recreational Vehicle Family Camping Area  
(RV Fam Camp)

Naval Air Station (NAS) Fort Worth  
Joint Reserve Base  
Carswell Field, Texas



March 1999

Contract No. F41624-95-D-8002  
Deliver Order No. 0003

Prepared for:  
**Department of the Air Force**  
HQ Human Systems Center (HSC) PKVCC  
3207 North Road  
Brooks AFB, Texas 78235-5353

**REVISED FINAL REPORT**

**SITE ASSESSMENT AND CHARACTERIZATION  
OF THE RECREATIONAL VEHICLE  
FAMILY CAMPING (RV FAM CAMP) AREA**

**NAVAL AIR STATION (NAS) FORT WORTH  
JOINT RESERVE BASE  
CARSWELL FIELD, TEXAS**

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**Department of the Air Force**  
Headquarters (HQ) Human Systems Center (HSC) PKVCC  
3207 North Road  
Brooks AFB, Texas 78235-5353

Prepared by:

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Issaquah, Washington 98027

## REVIEW COMMENTS AND RESPONSES TO REVIEW COMMENTS

The following tables and letters contain the technical review comments and The Environmental Company, Inc.'s (TEC's) responses on the draft and final characterization reports for the Recreational Vehicle (RV) Family Camping (Fam Camp) and Fuel Pipeline areas at Naval Air Station (NAS) Fort Worth, Joint Reserve Base, Carswell Field. The comments were prepared by the Air Force Center for Environmental Excellence (AFCEE), U.S. Environmental Protection Agency (EPA), and Texas Natural Resource Conservation Commission. The tables and letters include the following:

- Response to AFCEE Review Comments (May 1, 1997) on the Draft Site Assessment, Investigation, and Characterization Report for the RV Fam Camp and Fuel Pipeline Areas (March 1997)
- Response to EPA Review Comments (September 23, 1997) on the Draft Site Assessment, Investigation, and Characterization Report for the RV Fam Camp and Fuel Pipeline Areas (March 1997)
- Response to TNRCC Review Comments (February 9, 1998) on the Draft Site Assessment, Investigation, and Characterization Report for the RV Fam Camp and Fuel Pipeline Areas (March 1997)
- Letter from EPA, dated July 20, 1998, regarding review comments on the Final Site Assessment and Characterization Report for the RV Fam Camp Area (June 1998) and the Final Site Assessment Investigation and Characterization Report for the Fuel Pipeline Areas (June 1998)
- Letter from TNRCC, dated July 27, 1998, regarding review comments on the Final Site Assessment and Characterization Report for the RV Fam Camp Area (June 1998) and the Final Site Assessment Investigation and Characterization Report for the Fuel Pipeline Areas (June 1998)

The Final Site Assessment and Characterization Report for the RV Fam Camp Area (June 1998) and the Final Site Assessment Investigation and Characterization Report for the Fuel Pipeline Areas (June 1998) represent revisions of the Draft Report based on the 1997 and February 1998 review comments listed above. As part of revising the Draft Report, the RV Fam Camp investigation was separated from the Fuel Pipeline investigation, resulting in the two final characterization reports. The letters dated July 1998 and prepared by EPA and TNRCC are review comments on these two reports.

In response to the July 1998 letters, TEC resampled locations in the RV Fam Camp and Fuel Pipeline areas based on historical observations, previous investigations, organic vapor screening, and hydrocarbon fingerprinting. The results associated with the resampling effort in the RV Fam Camp area are presented in this revised final report. The results for the Fuel Pipeline areas are presented in a separate report.

**RESPONSE TO AFCEE REVIEW COMMENTS (MAY 1, 1997) ON THE  
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)  
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS**

**General Comments**

Item	Comment	Response and/or Action Taken
1	The contractor presented a partial risk evaluation of the Unnamed Stream area and the West Fork of the Trinity River area. Action levels were not determined for these areas since the contamination identified at these sites was attributed to sources other than the pipeline being investigated by this project. Risk assessments are being performed for sites encompassing the Unnamed Stream and the West Fork of the Trinity River areas as part of site investigations conducted under separate contracts. The contractor's evaluation of the exposure scenarios for these areas was unnecessary for the reasons indicated above. The partial evaluation of the risk assessment process was somewhat confusing, presenting pathways and not evaluating them. All of these requirements for the risk assessment process at these areas will be addressed by the other contracts.	Concur, risk evaluation modified.
2	The contractor should reevaluate the screening action levels (SALS) presented in Table 2-5. Practical quantitation limits (PQLs) should only be used in place of lower background levels if it is demonstrated that lower levels of quantitation of a contaminant are not possible. Additionally, background levels used for arsenic, lead, and cadmium are higher than those determined in the most recent draft Basewide Background Study (Jacobs 1997). The contractor should reevaluate contaminants as necessary if the SALS are changed.	PQLs were not used as screening levels in the revised final report.  The screening levels were revised in the revised final report to reflect the results of the draft Basewide Background Study (Jacobs 1997) and subsequent revisions (Jacobs 1998); analytes were reevaluated with respect to the screening levels.
3	The contractor did not present a conceptual site model (CSM) as stated in the Work Plan (WP) and statement of work (SOW). A CSM in tabular format as specified in the Air Force Center for Environmental Excellence (AFCEE) "Handbook" (September 1993) would greatly clarify the exposure pathway analysis presented in the risk evaluation.	A tabular CSM based on AFCEE guidelines is included in the revised final report.

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the RV Fam Camp report.

RESPONSE TO AFCEE REVIEW COMMENTS (MAY 1, 1997) ON THE  
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)  
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Specific Comments

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
1	xiii	Executive Summary	The last sentence of this page is not complete. This sentence would describe the recommended management category for the RV Fam Camp if completed. The value box area and Farmers Branch Creek area should also be categorized.	Text added
2	1 - 7	1.4.1.2	The contractor should clarify the reference to lead exceeding action levels. Is the contractor referring to action levels developed in this report or action levels developed in the RFI (Law 1995) being discussed?	The text refers to action levels developed in the RFI. Text was modified.
3	1 - 10	1.5.1	The contractor should clarify that the galvanized water trough to be installed at the former oil/water separator location at the Unnamed Stream will only be in place until the removal project is completed.	Point clarified.
4	1 - 10	1.5.3	The contractor should clarify the tank removal date at the Base Service Station (BSS). This section conflicts with section 1.4.1.3.	The date was revised to 1993.
5	Figure 1 - 3	Figure 1-3	The road identified as River Oaks Boulevard should be identified as White Settlement Road.	Figure modified.
6	Figure 1 - 4	Figure 1-4	Soil borings shown on the map should be included in the legend. The site symbol consisting of horizontal lines should also be identified in the legend.	Figure modified. Boring locations were removed. Figure 1-4 is Figure 1-5 in the revised final report.
7	Figure 1 - 4	Figure 1-4	The term "abandoned USTs" is used in the figure to represent the former location of underground storage tanks (USTs). The contractor should label the location "former UST location".	Figure modified.

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the RV Fam Camp report.

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Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
8	2-7	2.2.2.2	The text indicates that a split-spoon sampler was driven in accordance with ASTM D-1586. The contractor should correct the text to indicate the manner in which samples were actually collected. The sampler was not driven. The borehole logs in Appendix G indicate that a 5-foot sampler was utilized and no blow counts are presented.	Text modified.
9	2-8	2.2.2.2	The contractor indicates that decontamination fluids were contained and disposed of in accordance with Texas Natural Resource Conservation Commission (TNRCC) regulations. Decontamination fluids were contained but not disposed. No analytical results or disposal receipts are presented for investigation-derived waste (IDW). The SOW and WP indicate that the contractor will dispose of IDW. The contractor should explain the disposition of the IDW including soil and fluids.	Text modified.
10	2-12	2.2.6.1	The contractor should indicate the location of the ambient blank sample.	Text modified.
11	2-13	2.3.1	The contractor indicates that the hydrocarbon fingerprinting identified the exact type of product present in the sample. Suggest the contractor delete the word "exact" from the text.	Text modified.
12	2-17	2.4.3	The contractor should indicate that the reason for evaluating the RV Fam Camp under Texas Administrative Code (TAC) 335, Subchapter S, instead of Petroleum Storage Tank (PST) guidelines is that it is not a PST area.	Concur. Text modified.

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the RV Fam Camp report.



**RESPONSE TO AFCEE REVIEW COMMENTS (MAY 1, 1997) ON THE  
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)  
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Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
13	2-19	2.4.3.1	The contractor indicates that the SALs for PST areas are based on the PQLs if the PQLs are higher than background levels. The contractor should only consider using the PQL as the SAL if it is demonstrated that lower levels of quantitation of a contaminant are not possible.	PQLs were not used as screening levels in the revised final report.
14	2-19	2.4.3.1	The contractor indicates that the SALs for the Unnamed Stream and RV Fam Camp areas are based on the PQLs if the PQLs are higher than background levels. The contractor should address the statement in TAC 335.554 (d) that the PQL can only be used as the SAL if it is demonstrated that lower levels of quantitation of a contaminant are not possible.	PQLs were not used as screening levels in the revised final report.
15	2-24	Table 2-5	Suggest the contractor utilize background concentrations for arsenic instead of the PQLs. The contractor should verify the background concentrations utilized for arsenic, cadmium, and lead. The levels are considerably higher than the levels determined in the January 1997 Jacobs Engineering Basewide Background Study at NAS Fort Worth.  NOTE: The January 1997 Jacobs Basewide Background Study is a draft version.	Screening levels were revised to reflect the upper tolerance limit (UTL) concentrations presented in Jacobs' draft Basewide Background Study (Jacobs 1997) and subsequent revisions to some of the UTLs (Jacobs 1998).

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Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the RV Fam Camp report.

**RESPONSE TO AFCEE REVIEW COMMENTS (MAY 1, 1997) ON THE  
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)  
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS**

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
16	3-11	3.3.4.3	The text indicates that an analysis of the potential risks posed by compounds exceeding SALs at the Unnamed Stream is presented in section 5.0 of the report. The contractor should correct this statement since action levels were not developed for these compounds at the Unnamed Stream in this report. The risks posed are to be evaluated under another contract.	Concur, text modified.
17	3-13	3.3.5.3	See above comment. The above comment also applies to the West Fork of the Trinity River area.	Concur, text modified.
18	3-24	Table 3-8	The summary of detected results does not list benzene under the heading of BTEX (benzene, toluene, ethylbenzene, xylenes). Similar situations exist for other samples listed on other tables following this table. The same omission occurs for figure 3-1. The contractor should correct or clarify.	Footnotes were added to Section 3.0 tables and figures to indicate that only detected compounds were included.  Benzene was not detected in Valve Box soil samples.
19	4-1	4.3	The reference to section 3.4 should be corrected to section 3.3.4.	Irrelevant to the revised final report.
20	5-1	5.0	The contractor should present a CSM in this section of the report as required by the WP and SOW. The AFCEE Handbook specifies a CSM in tabular format.	A tabular CSM based on AFCEE guidelines is included in the revised final report.
21	5-2	5.0	The contractor should not present an evaluation of the exposure scenarios for sites which were determined not to be sources.	Concur, text modified.

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the RV Fam Camp report.

**RESPONSE TO AFCEE REVIEW COMMENTS (MAY 1, 1997) ON THE  
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)  
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Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
22	5 - 2	5.1.2	The contractor indicates that the selection of potential human receptors was based in part on the migration potential evaluation in section 4.0; however, the migration potentials of the Unnamed Stream and the West Fork of the Trinity River were not discussed in section 4.0 since the pipelines did not contribute to the contamination.	Concur, text modified.
23	5 - 3	5.1.2	The contractor infers that the Unnamed Stream is located next to the golf course; however, the Unnamed Stream is separated from the golf course by a significant distance and buildings, roads and undeveloped land not associated with the golf course. The contractor should delete or clarify the manner in which the Unnamed Stream could be associated with the golf course.	Concur, text deleted.
24	5 - 3	5.1.2	If potential beneficial use of the groundwater at the Unnamed Stream and RV Fam Camp is designated Category I due to the potential to impact groundwater, this reasoning and designation would also apply to the West Fork of the Trinity River area. Seepage to the river in this area has already been noted (section 1.4.1.3).	Eliminated discussion of the Unnamed Stream and West Fork of the Trinity River areas because investigations of these areas are addressed under separate contracts.
25	5 - 4	5.1.3	The contractor should eliminate use of the term "expanded golf club" or include reference to the Unnamed Stream and RV Fam Camp.	Concur, reference eliminated.

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Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the RV Fam Camp report.

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**RESPONSE TO AFCEE REVIEW COMMENTS (MAY 1, 1997) ON THE  
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)  
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Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
26	5 - 4	5.1.3	The contractor begins the fourth paragraph indicating that the only environmental media of concern for this risk evaluation is subsurface soil. This is an inaccurate statement which seems to indicate an incomplete risk evaluation. This section on exposure pathway evaluation must evaluate all practical potential for exposure. Only after the evaluation of each potential pathway can the complete pathways be identified. The pathways must also consider future transport to other media of concern. The contractor indicates that no exposure exists for surface soils; however, no surface soil samples were obtained.	Text was modified to reflect results of Sections 3.0 and 4.0, which conclude that chemicals of concern were only detected in subsurface soil and future contaminant migration to other media is not expected. Surface soil was screened using PID. Because PID results indicated no surface soil contamination and the pipelines are located below the ground surface, no surface soil samples were collected for laboratory analysis.
27	5 - 4	5.1.3	The contractor indicates that groundwater is not likely to be impacted by sources identified in this study, as indicated in section 4.0. Section 4.0 clearly indicates the groundwater contamination exists in the area of the Unnamed Stream and the West Fork of the Trinity River. If the contractor is attempting to indicate the groundwater is not impacted by the sources investigated for this report, the pipeline areas, why are they being evaluated in this section?	Based on AFCEE's general comments, discussion of these areas was eliminated from the exposure pathway analysis.

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RESPONSE TO AFCEE REVIEW COMMENTS (MAY 1, 1997) ON THE  
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)  
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Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
28	5-5	5.1.3	The future exposure scenarios have failed to consider dermal exposure to the construction worker. The recreational visitor should not contact or ingest subsurface soils	Cleanup levels in the revised final report were based on TNRCC's 1998 implementation of RRSN guidance memorandum. The RRSN2 values provided in this guidance incorporate dermal and inhalation exposures under a residential scenario.
29	5-17	Table 5-5	The contractor should clarify the status of arsenic. Was arsenic detected or evaluated?	Arsenic was not detected at the RV Fam Camp area.

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the RV Fam Camp report.

RESPONSE TO EPA REVIEW COMMENTS (SEPTEMBER 23, 1997) ON THE  
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)  
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS

General Comments

Item	Comment	Response and/or Action Taken
A.	USAF's Draft SC Report should include a document intended to be used in fulfilling deed recordation requirements if appropriate.	Not appropriate because no deed restrictions are required.

Specific Comments

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
B.	xiii	Executive Summary	USAF recommends that the RV Fam Camp be managed under Category 1 (no further action).  USAF should include a statement that specifies which of the TNRCC's Risk Reduction Standards are applicable to the RV Fam Camp.	Text added.
C.	1 - 3	1.2.4	USAF provided a brief description of the regional geology.  USAF should include a stratigraphic map in the Draft SC Report that represents the subsurface at the RV Fam Camp. This detailed cross-section of the study area should utilize the information obtained from the field investigations.	A stratigraphic map is included in the revised final report (Figure 1-4).

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the RV Fam Camp report.



**RESPONSE TO EPA REVIEW COMMENTS (SEPTEMBER 23, 1997) ON THE  
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)  
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Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
D.	2-19	2.4.3.1	<p>USAF states that the screening action levels (SALS) for the RV Fam Camp area were based on the maximum background concentrations measured during the Oil/Water Separator Assessment and RCRA Facility Investigation conducted by Law Environmental, Inc. in 1994. USAF adds that the background soil samples were obtained from five boreholes drilled within the vicinity of the investigation area to depths ranging from 4 to 14 feet below the ground's surface. Table 2-5 (Basis for TNRCC Screening Action Levels (SALS) for the RV Fam Camp Site Investigation) lists the SALS chosen by USAF for the RV Fam Camp.</p> <p>USAF should provide additional information in the Draft SC Report that justifies the selection of background concentrations. EPA does not believe that the use of maximum concentrations of inorganics is appropriate for use as background concentrations and comparison to soil analytical data or TNRCC's media-specific concentrations (MSCs). The technical issues that should be addressed by USAF include selection of background sampling locations, considerations in selection of sampling procedures, and statistical analyses.</p>	<p>Background upper tolerance limit (UTL) concentrations from Jacobs Engineering draft Basewide Background Study (Jacobs Engineering 1997) were used as screening levels in the revised final report. Some of the UTLs were revised subsequent to release of the study report (Jacobs personal communication 1998). These revised values were used as screening levels.</p> <p>POLs were not used as screening levels in the revised final report.</p>

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the RV Fam Camp report.

**RESPONSE TO EPA REVIEW COMMENTS (SEPTEMBER 23, 1997) ON THE  
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Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
D (cont)	2-19	2.4.3.1	<p>USAF should consider the protocols described in the following EPA guidance documents in the establishment of background for all environmental media of concern. These documents, not all inclusive, are titled: Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities" (Addendum to Interim Final Guidance, June 1992), "Statistical Analysis of Ground Water Monitoring Data at RCRA Facilities" (Interim Final Guidance, April 1989, EPA/530-SW-89-026), and "Determination of Background Concentrations of Inorganics in Soils and Sediments at Hazardous Waste Sites" (December 1995, EPA/540/5-96/500).</p> <p>Although the document has not been approved by TNRCC, USAF should also consider USAF's "Draft Base-Wide Background Study" (January 1997) in the development background for the RV Fam Camp. The Draft SC Report may require amendment based on TNRCC's comments concerning this background study.</p> <p>For clarification purposes, the objective of the RCRA Facility investigation is to delineate the full vertical and horizontal extent of contamination to background conditions. Therefore, it is imperative that true background conditions are established for the RV Fam Camp.</p>	

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the RV Fam Camp report.



RESPONSE TO EPA REVIEW COMMENTS (SEPTEMBER 23, 1997) ON THE  
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)  
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Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
D. (cont)	2-19	2.4.3.1	<p>Once background conditions are established, USAF should determine whether the analytical data collected to date are representative of the full vertical and horizontal extent of contamination, if present, at the RV Fam Camp. EPA realizes that in some cases delineating the extent of contamination to unaffected background may not be possible or practical. USAF should discuss this issue with EPA and TNRCC if this is the case at NAS FW.</p> <p>Additionally, USAF must demonstrate in the Draft SC Report that lower levels of quantitation are not possible if Practical Quantitation Limits are used as the basis for the selection of action levels (e.g., the PQLs are greater than their respective background and/or MSCS).</p>	
E.	3-33	Table 3-12	<p>Table 3-12 provides a comparison of the soil sampling results with the TNRCC screening levels. USAF should also consider EPA's Region 6 Human Health Media-Specific Screening Levels in the comparison to the soil analytical results and background concentrations.</p>	<p>Screening of site concentrations at the RV Fam Camp area is based on Risk Reduction Standard Number 1, which relies on background concentrations for determining compliance. Because the focus is on background, risk-based concentrations are not considered in the screening step for this study area.</p>

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**RESPONSE TO EPA REVIEW COMMENTS (SEPTEMBER 23, 1997) ON THE  
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)  
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Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
F.	5-6	5.1.5	<p>USAF provided Table 5-3 (Action Levels for COPC at the RV Fam Camp Area) which lists the MSCs applicable to the RV Fam Camp.</p> <p>USAF modified the residential MSCs to generate recreational and industrial soil scenarios by multiplying the values by a factor to account for the lower exposure frequency. This modification may be reasonable for noncarcinogens but is not recommended for carcinogens since the non-threshold assumption for estimating carcinogenic risk does not allow for the modification based on exposure frequency.</p>	<p>Irrelevant for the revised final report because MSCs obtained from TNRCC's 1998 implementation of RRSN2 guidance memorandum.</p>

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**RESPONSE TO TNRCC REVIEW COMMENTS (FEBRUARY 9, 1998) ON THE  
DRAFT SITE ASSESSMENT, INVESTIGATION, AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE (RV)  
FAMILY CAMPING (FAM CAMP) AND PIPELINE AREAS AT NAVAL AIR STATION (NAS) FORT WORTH, TEXAS**

**General Comments**

Item	Comment	Response and/or Action Taken
A.	Efforts should be made to identify any Leaking Petroleum Storage Tank (LPST) sites that are referenced in the report (BSG, BSS, etc.) which provide evidence to the final findings of the investigation.	Added LPST ID numbers next to LPST sites (eg. BSS, BSG) throughout report, per Antonio Pena (TNRCC, February 23, 1998).

**Specific Comments**

Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
A.	xiii	Executive Summary	USAF states that no further action status is recommended because no significant impact to human health and environment exists.  USAF should also state that no potential for significant impact exists under future exposure scenarios for the sub-population chosen in Section 5.0 (Risk Evaluation).	Concur. Text added.
B.	1 - 3	1.2.4	USAF should include a geologic stratigraphic map that represents the subsurface along the pipeline areas. Information from field investigations in combination with regional geologic knowledge should be utilized to prepare such a map.	A stratigraphic map is included in the revised final report (Figure 1-4).

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the RV Fam Camp report.

RESPONSE TO TNRCC REVIEW COMMENTS (February 9, 1998) ON THE  
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Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
C.	1-9	1.4.1.3	USAF should make efforts to include the most up-to-date information obtained through the latest field investigations at the BSS. Also, SC report should mention that the sources at this location have been removed/eliminated.	Concur. Text added.
D.	2-17	2.4.3	Please identify the references TNRCC PST Division documents utilized for risk evaluation/methodology as RG-175 and RG-36 respectively.	Text added.
E.	2-19	2.4.3.2	Different methodologies were used to set SALs for organics and inorganics due to some chemicals not being in Table A-1 of Beneficial Groundwater Use Category 1 Levels. For SALs set to background levels, additional justification should be provided for the selection of background concentrations as maximum concentrations obtained during 1994 field investigations of other areas. Characterization of background conditions should be determined by placement of borings outside the area of potential contamination. Because direct sampling data from the area of concern prior to waste management activities is seldom available, the use of nearby, non-impacted sampling data in conjunction with statistical/geostatistical estimation techniques and/or statistical models is recommended.	Background upper tolerance limit (UTL) concentrations from Jacobs Engineering draft Basewide Background Study (Jacobs 1997) were used as screening levels in the revised final report. Some of the UTLs were revised subsequent to release of the study report (Jacobs personal communication 1998). These revised values were used as screening levels.

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the RV Fam Camp report.

**RESPONSE TO TNRCC REVIEW (February 9, 1998) COMMENTS ON THE  
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Item	Page	Section/ Paragraph	Comment	Response and/or Action Taken
F.	2-19	2.4.3.2	USAF should provide the basis (ex: TDS, receptors, groundwater depth, etc.) for selecting the more stringent Beneficial Groundwater Use Category I target levels over Category II, which is the denomination currently applied to other PSTD areas at the Base. Information about the probable well yield, based on nearby and/or regional experience, at the depths of concern is critical to a risk-based approach.	Assumption of Category I was a conservative measure for screening purposes (i.e. in development of screening action levels), before an exposure analysis was performed. In addition, beneficial use of the groundwater in the vicinity of the Unnamed Stream and RV Family Camp areas is designated as Category I by TNRCC because of potential contaminant migration into local surface water (Parsons Engineering 1996). Therefore, Category I was assumed in the screening step of the Risk Evaluation.
G		Section 5.0	An attempt should be made to identify all complete exposure pathways. The ingestion of COPCs in subsurface soil pathway for the industrial worker population appears to be incomplete due to unlikely excavation activities. TNRCC PSTD recommends the inclusion of the future construction worker scenario because the possibility for repairs/maintenance of the active Pride Petroleum pipeline appears to be likely. Also, target risk for the future pipeline construction/repair/maintenance worker scenario would be protective of the industrial worker.  USAF should specify the target risk in the SC report, for PSTD areas, the permissible risk for future exposure scenario is $1 \times 10^{-4}$ .	Irrelevant; no COPCs were identified in the revised final report.

403

Note: shaded items designate the comments/responses relevant to the Revised Final Site Assessment and Characterization of the RV Fam Camp report.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
 REGION 6  
 1445 ROSS AVENUE, SUITE 1200  
 DALLAS, TX 75202-2733

July 20, 1998

Mr. Rafael Vazquez,  
 AFBCA Regional Operating Location  
 3711 Outlaw Country Drive  
 Austin, Texas 78719-2557

Dear Mr. Vazquez:

The Environmental Protection Agency (EPA) has reviewed the documents, "Site Assessment and Characterization of the Fuel Pipeland Area and Site Assessment and Characterization of the Recreational Vehicle Family Camping Area", Carswell Air Force Base June 1, 1998. Although specific comments may not be required, the reports are being used by the Air Force to categorize property as uncontaminated for eventual transfer. Based upon a review of the data in this report, additional concerns are noted below.

The conclusions reached in these reports are based upon analytical data from Inchcape Testing Service. Due to concern with validation of data from Inchcape, the data should be considered suspect. I cannot concur with the listing of the property as Category 1, based upon this data.

Please contact me at (214) 665-8306 should you wish to discuss this further.

Sincerely,

Gary W. Miller  
 Senior Project Manager  
 Base Closure Team

cc: Mark Weegar, TNRCC  
 Antonio Pena, TNRCC  
 ✓ Charles A. Rice, AFCEE

Barry R. McBee, *Chairman*  
 R. B. "Ralph" Marquez, *Commissioner*  
 J. M. Baker, *Commissioner*  
 Hey A. Saitas, *Executive Director*



## TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

*Protecting Texas by Reducing and Preventing Pollution*

July 27, 1998

Mr. Charles A. Rice  
 Base Closure Restoration Division  
 HQ AFCEE/ERB  
 3207 North Road, Bldg. 532  
 Brooks AFB, Texas 78235-5363

Re: Final Site Characterization Report for the Recreational Vehicle Family Camping and Fuel Pipeline Areas, NAS Fort Worth JRB- Carswell Field, Fort Worth (Tarrant County), Texas  
 (Facility ID No. 009696)

Dear Mr. Rice:

We have received and reviewed the Final Site Characterization (SC) Report for the Vehicle Family Camping and Fuel Pipeline Areas (June 1998) for NAS Fort Worth JRB (formerly Carswell AFB). The reports are being utilized by the Air Force/U.S. Navy to categorize property as uncontaminated under the PST Chapter 334 regulations for eventual transfer and future use.

It is noted that all Texas Natural Resource Conservation Commission (TNRCC) conclusions reached in these reports (workplan, draft and final version) have been based upon analytical laboratory data from Incheape Testing Service (ITS). Due to current concerns with the validity of data from ITS, prior to consideration of your No Further Action recommendation, we request reprocessing of the data from ITS. We suggest you contact ITS about the reprocessing process they plan to implement to offset the concerns raised with validation of data from 1994 through January 1998.

We appreciate reviewing this regulatory document. Should you have any questions concerning our conclusions or wish to discuss this matter further, please contact me at 512/239-2186.

Sincerely,

Antonio Peña, P.E.  
 Federal Facilities Coordinator  
 Responsible Party Remediation Section  
 Remediation Division

ARP/keh  
 scpjpela.fnn

cc: Mr. Alvin Brown (AFBCA/OL-H)  
 (6550 White Settlement Road, Ft. Worth, Texas 76114-3520)  
 Ann Strahl, TNRCC I&HW, MC-141  
 Sam Barrett, TNRCC Region 4 Field Office  
 (1101 East Arkansas Lane, Arlington, Texas 76010-6499)

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4. TITLE AND SUBTITLE REVISED FINAL REPORT SITE ASSESSMENT AND CHARACTERIZATION OF THE RECREATIONAL VEHICLE FAMILY CAMPING (RV FAM CAMP) AREA NAVAL AIR STATION (NAS) FORT WORTH JOINT RESERVE BASE (JRB) CARSWELL FIELD, TEXAS		5. FUNDING NUMBERS F41624-95-D-8002 Delivery Order 0003		
6. AUTHOR(S) The Environmental Company, Inc.				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) The Environmental Company, Inc. 2496 Old Ivy Road, Suite 300 Post Office Box 5127 Charlottesville, Virginia 22905		8. PERFORMING ORGANIZATION REPORT NUMBER NA		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) HQ AFCEE/ERB Air Force Center for Environmental Excellence Base Closure Division Brooks AFB, TX 78235		10. SPONSORING/MONITORING AGENCY REPORT NUMBER NA		
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12a. DISTRIBUTION/AVAILABILITY STATEMENT		12b. DISTRIBUTION CODE		
13. ABSTRACT (Maximum 200 words) This technical report provides a summary of investigation activities that included a Site Assessment and Site Characterization of the area in the vicinity of the Recreational Vehicle Family Camping Area at Naval Air Station Fort Worth, Joint Reserve Base, Carswell Field, Texas. No contamination was identified as being attributable to a source associated with the RV Fam Camp. It was recommended that the site be managed under Category I: No Further Action.				
14. SUBJECT TERMS TECHNICAL REPORT			15. NUMBER OF PAGES	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT Unclassified			18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION Unclassified
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**PREFACE**

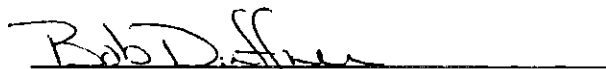
A site assessment (SA) and a site characterization (SC) of the area in the vicinity of the Recreational Vehicle (RV) Family Camping (Fam Camp) Area at Naval Air Station (NAS) Fort Worth, Joint Reserve Base, Carswell Field, Texas (identified as Project No. 95-8021) was conducted to determine the presence or absence of contamination and to define the nature and extent of such contamination if present.

This report was prepared by The Environmental Company, Inc. (TEC) under contract No. F41624-95-D-8002, Delivery Order 0003 for Project No. 95-8021.

This report provides a summary of the SA and SC investigation activities, including a risk evaluation and conclusions of the investigation.

This report was written under the direction of Mr. Bob Duffner, TEC Project Manager. The Contracting Officer's Representative for this project is Mr. Charles Pringle, Air Force Center for Environmental Excellence (AFCEE), Environmental Restoration Branch (ERB), Brooks Air Force Base (AFB), Texas.

Approved:

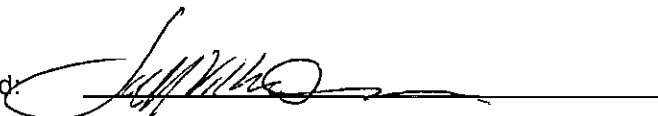


Date:

4/28/99

Bob Duffner, P.E.  
The Environmental Company, Inc.  
TEC Project Manager

Approved:



Date:

4/28/99

Jack E. Wilson, P.E.  
The Environmental Company, Inc.  
TEC Project Director

## NOTICE

This report has been prepared for the United States Air Force by The Environmental Company, Inc. (TEC) for the purpose of aiding in the implementation of a final remedial action plan under the Air Force Installation Restoration Program (IRP).

Although the area of study was investigated in accordance with IRP guidance, the area has not been identified as an IRP site. NAS Fort Worth (formerly Carswell Air Force Base) is undergoing property disposal/reuse pursuant to the Defense Base Closure and Realignment Act of 1990 and Round II of the Base Closure Commission deliberations. The area of study is being considered for property disposal or reuse and the Air Force Base Conversion Agency (AFBCA) desires to investigate the area to confirm or deny the presence of contamination.

As the report relates to actual or possible releases of potentially hazardous substances, its release prior to a United States Air Force final decision on remedial action may be in the public's interest. The limited objectives of this report and the ongoing nature of the IRP, along with the evolving knowledge of site conditions and chemical effects on the environment and health, must be considered when evaluating this report because subsequent facts may become known that may make this report premature or inaccurate.

Acceptance of this report in performance of the contract under which it is prepared does not mean that the Air Force adopts the conclusions, recommendations, or other views expressed herein, which are those of the contractor only and do not necessarily reflect the official position of the United States Air Force.

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## EXECUTIVE SUMMARY

A two-phase investigation was conducted at the Naval Air Station (NAS) Fort Worth, Joint Reserve Base, Carswell Field, Texas. The investigation focused on the Recreational Vehicle Family Camping (RV Fam Camp) area. The investigation was conducted in support of ongoing disposal/reuse efforts pursuant to the Defense Base Closure and Realignment Act of 1990 and Round II of the Base Closure Commission deliberations.

During the initial site assessment phase, background information including historic observations and investigation reports for adjacent and/or associated sites was collected. During this initial effort, it was indicated that a leach field may have been used for disposal of RV Fam Camp domestic wastewater. Results of this assessment were combined with those from a geophysical survey conducted during the site characterization phase to identify potential areas of concern within the RV Fam Camp area. The subsurface soil in portions of the RV Fam Camp area associated with a potential leach field was characterized during the final phase of the investigation.

A total of five boreholes were advanced in the RV Fam Camp area. Six subsurface samples (including a field duplicate) collected from the boreholes were analyzed for volatile organics, semivolatile organics, pesticides/polychlorinated biphenyls, and inorganics.

The investigation found no evidence indicating that a leach field was present at the RV Fam Camp area. Limited low-level metal and volatile organic contamination was identified at concentrations below levels of concern for human health or the environment. **These contaminants were above background and were therefore evaluated using TNRCC Risk Reduction Standard Number 2. However, the standard is not considered applicable to the site with respect to closure because these low-level contaminants are not believed to be associated with RV Fam Camp historic activities.**

Based on the results of this investigation, it is recommended that the RV Fam Camp area be managed under Category 1. **The Air Force Center for Environmental Excellence defines Category 1 management as no further action because no significant impact to human health or the environment exists.**

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## LIST OF ACRONYMS AND ABBREVIATIONS

AA	Atomic Absorption
ACC	Air Combat Command
AFB	Air Force Base
AFBCA	Air Force Base Conversion Agency
AFCEE	Air Force Center for Environmental Excellence
AL	Action Level
ARAR	Applicable or Relevant and Appropriate Requirement
ASTM	American Society of Testing and Materials
bgs	below ground surface
BHB	Baird, Hampton & Brown, Inc.
BHC	Benzene Hexachloride
BTEX	Benzene, Toluene, Ethylbenzene, and Xylene
°C	degrees Celsius
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
cm	centimeter
COPC	Chemical of Potential Concern
CPG	Certified Professional Geologist
CSF	Cancer Slope Factor
CUL	cleanup level
DBCRA	Defense Base Closure Realignment Act
DEQPPM	Defense Environmental Quality Program Policy Memorandum
DOD	Department of Defense
DOT	Department of Transportation
DPT	Direct-Push Technology

DQO	Data Quality Objective
DTIC	Defense Technical Information Center
EM	Electromagnetic
EMIMD	Electromagnetic Induction Metal Detection
EMPCL	Electromagnetic Pipe and Cable Location
EPA	U.S. Environmental Protection Agency
ERB	Environmental Restoration Branch
°F	degrees Fahrenheit
Fam Camp	Family Camping
FOD	Frequency of Detect
FSP	Field Sampling Plan
GC/MS	Gas Chromatography/Mass Spectroscopy
GPR	Ground Penetrating Radar
HQ	Headquarters
HSA	Hollow-Stem Auger
ICP	Inductively Coupled Plasma
IRP	Installation Restoration Program
IRPIMS	Installation Restoration Program Information Management System
Kg	Kilogram
L	liter
LCS	Laboratory Control Samples
LSTP	Leaking Storage Tank Program
MCL	Maximum Concentration Level
MDL	Method Detection Limit

## LIST OF ACRONYMS AND ABBREVIATIONS, continued

mg	milligram
MIBK	Methyl Isobutyl Ketone
MS	Matrix Spike
MSC	Medium-Specific Concentration
MSD	Matrix Spike Duplicate
MSSL	Media-Specific Screening Levels
NAS	Naval Air Station
NCP	National Contingency Plan
ND	Not Detected
NOAEL	No-observed-adverse-effect-level
PCB	Polychlorinated Biphenyl
P.E.	Professional Engineer
PID	Photoionization Detector
ppm	parts per million
PQL	Practical Quantitation Limit
PVC	Polyvinyl Chloride
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
QC	Quality Control
RBC	Risk-Based Concentration
RfD	Reference Dose
RI/FS	Remedial Investigation/Feasibility Study
RME	Reasonable Maximum Exposure
RRSN	Risk Reduction Standard Number

## LIST OF ACRONYMS AND ABBREVIATIONS, continued

453 35

RV	Recreational Vehicle
SA/SI	Site Assessment/Site Investigation
SAC	Strategic Air Command
SAL	Screening Action Level
SARA	Superfund Amendments and Reauthorization Act
SB	Soil Boring
SC	Site Characterization
SOP	Standard Operating Procedures
SOW	Statement of Work
spp.	species
SVOC	Semivolatile Organic Compound
TAC	Texas Administrative Code
TEC	The Environmental Company, Inc.
TNRCC	Texas Natural Resource Conservation Commission
TPH	Total Petroleum Hydrocarbons
µg	microgram
USAF	United States Air Force
USEPA	United States Environmental Protection Agency
UTL	Upper Tolerance Limit
UTL <sub>95,95</sub>	UTL with 95percent confidence and 95percent coverage
VOC	Volatile Organic Compound
WP	Work Plan
YMCA	Young Men's Christian Association

**TAB**



## 1.0 INTRODUCTION

This Site Characterization (SC) report has been prepared by The Environmental Company, Inc. (TEC) under U.S. Air Force Center for Environmental Excellence (AFCEE) Contract No. F41624-95-D-8002, Delivery Order 0003, project number 95-8021. The SC report summarizes the results of an investigative effort conducted at the Naval Air Station (NAS) Fort Worth, Joint Reserve Base, Carswell Field, Texas. Areas investigated during this project include the following:

- Fuel distribution lines between Highway 183 and Ascol Drive, in the vicinity of the Unnamed Stream and along the West Fork of the Trinity River west of Jennings Drive; and
- Recreational Vehicle (RV) Family Camping area (Fam Camp).

The RV Fam Camp project consisted of a two-phase data collection effort that included an initial Site Assessment (SA) and SC. **This SC report provides a summary of the activities that took place in these phases and their results for the RV Fam Camp area. The investigation activities and results associated with the fuel pipeline areas are presented in a separate report (TEC, 1999a).**

All efforts were completed in accordance with guidelines provided in the Headquarters (HQ) AFCEE *Handbook for the Installation Restoration Program (IRP) Remedial Investigations and Feasibility Studies (RI/FS)*, dated September 1993 (hereafter referred to as the *Handbook*). Although the RV Fam Camp area was investigated in accordance with IRP guidance, it has not been identified as a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site. NAS Fort Worth (formerly Carswell Air Force Base) is undergoing property disposal/reuse pursuant to the Defense Base Closure and Realignment Act (DBCRA) of 1990 and Round II of the Base Closure Commission deliberations. The study area is being considered for property disposal or reuse.

### 1.1 THE AIR FORCE INSTALLATION RESTORATION PROGRAM

The objective of the U.S. Air Force IRP is to assess past hazardous waste disposal and spill sites at U.S. Air Force (USAF) installations and to develop remedial actions for those sites. The IRP is the basis for assessments and response actions consistent with the National Contingency Plan (NCP); the **CERCLA** of 1980; and the Superfund Amendments and Reauthorization Act (SARA) of 1986 for sites that pose a threat to human health and welfare or the environment.

Executive Order 12580, adopted in 1987, gave various Federal agencies, including the Department of Defense (DOD), the responsibility to act as lead agencies for conducting investigations and implementing remediation efforts when they are the sole or co-contributor to contamination on or off their properties.

To ensure compliance with CERCLA and Executive Order 12580, the DOD developed the IRP under the Defense Environmental Restoration Program to identify potentially contaminated sites, investigate these sites, and evaluate and select remedial actions for contaminated sites. The DOD issued Defense Environmental Quality Program Policy Memorandum (DEQPPM) 80-6 regarding the IRP program, dated June 1980. The DOD

formally revised and expanded IRP directives, and amplified all previous directives and memoranda concerning the IRP, through DEQPPM 81-5, dated 11 December 1981. The memorandum was implemented by a USAF message dated 21 January 1982.

The IRP is the primary mechanism for implementing response actions on USAF installations affected by the provisions of SARA. In November 1986, in response to SARA and other United States Environmental Protection Agency (EPA) interim guidance, the U.S. Air Force modified the IRP to provide for an RI/FS program. The IRP was modified so that RI/FS could be conducted as parallel activities rather than serial activities. The IRP now encompasses Applicable or Relevant and Appropriate Requirement (ARAR) determinations, identification and screening of remedial technologies, and the development of remedial alternatives. A project conducted under the IRP may include multiple field activities and studies prior to a detailed final analysis of remedial alternatives.

## **1.2 NAS FORT WORTH DESCRIPTION**

### **1.2.1 Installation Location**

NAS Fort Worth, Joint Reserve Base, Carswell Field (hereafter referred to as NAS Fort Worth) is located in north-central Texas in Tarrant County, approximately 8 miles west of the downtown area of the City of Fort Worth (Figure 1-1). NAS Fort Worth property totals 2,555 acres and consists of a main station and two noncontiguous land parcels. The area surrounding NAS Fort Worth is predominantly suburban, including the residential areas of the City of Fort Worth, Westworth Village, River Oaks, and White Settlement (Figure 1-2).

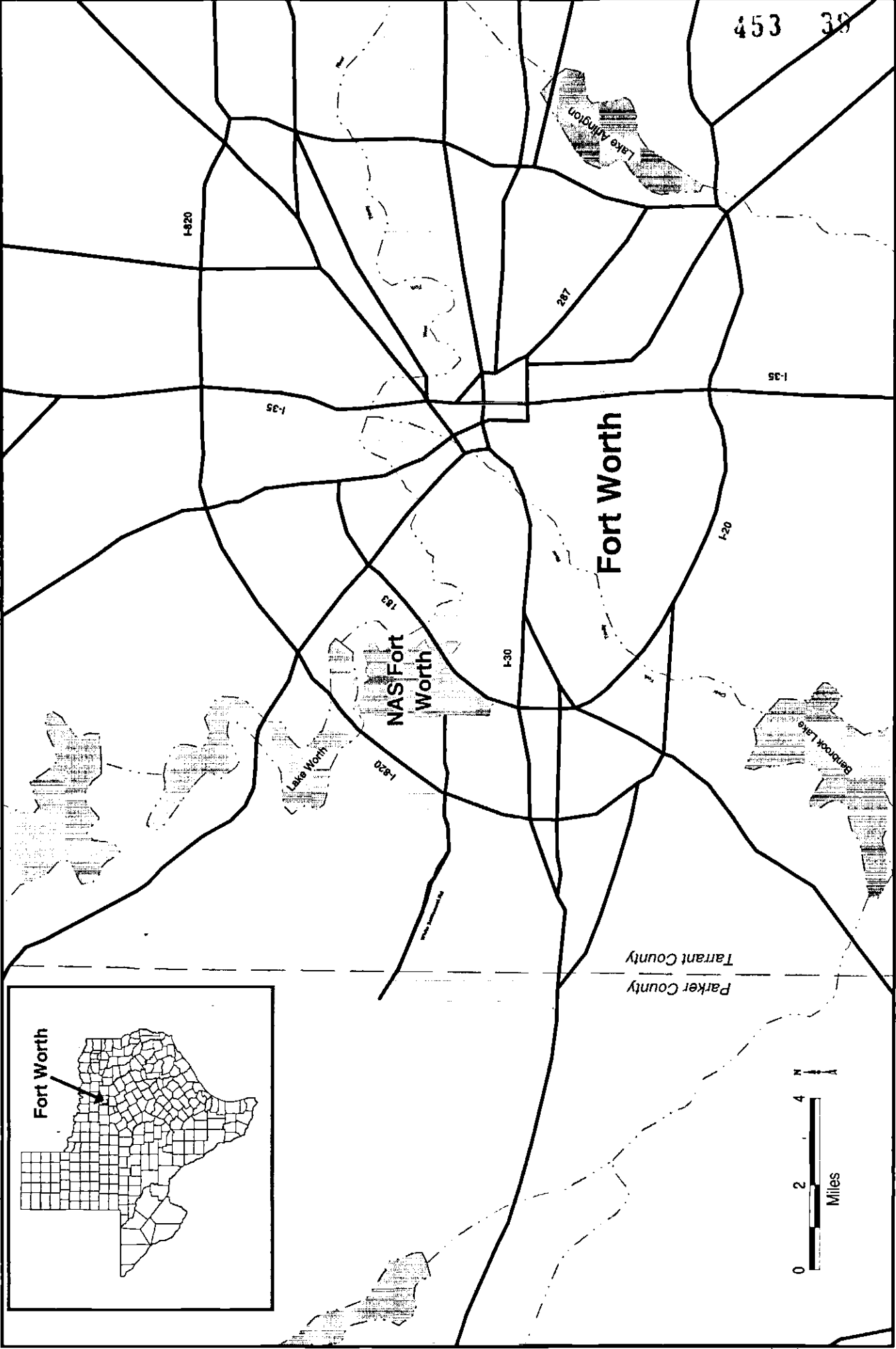
The main station consists of 2,264 acres and is bordered on the north by Lake Worth, on the east by the Trinity River and Westworth Village, on the northeast and southeast by the City of Fort Worth, on the west and southwest by White Settlement, and on the west by Air Force Plant 4 (Lockheed).

Public and recreational land surrounds Lake Worth north of the station; however, public access along the southern shore of the lake is restricted due to NAS Fort Worth activities. Private recreation lands, a fish hatchery, and a Young Men's Christian Association (YMCA) camp are located along the West Fork of the Trinity River northeast of the station. East and southeast of the station are various types of residential development; a commercial area is located south of the station at the interchange of Interstate Highway I-30 and State Highway 183. This commercial area includes a discount retail center, a shopping mall, and a convenience store. Land uses west of the station are primarily residential and industrial and include single-family residences, Air Force Plant 4, commercial centers, and an industrial complex in White Settlement.

### **1.2.2 Installation History**

The land area currently known as NAS Fort Worth was originally an earthen runway constructed to service an aircraft manufacturing facility. When established in 1942, the installation was referred to as the Tarrant Field Airdrome and was under the jurisdiction of the Gulf Coast Army Air Field Training Command. The installation mission was to provide transition training for B-24 bomber pilots.





Date: June 1998  
 Project Manager: B. Duffner  
 Prepared By: W. Mitchell  
 Project No.: P-3103

Figure 1-1 -- NAS Fort Worth Vicinity Map

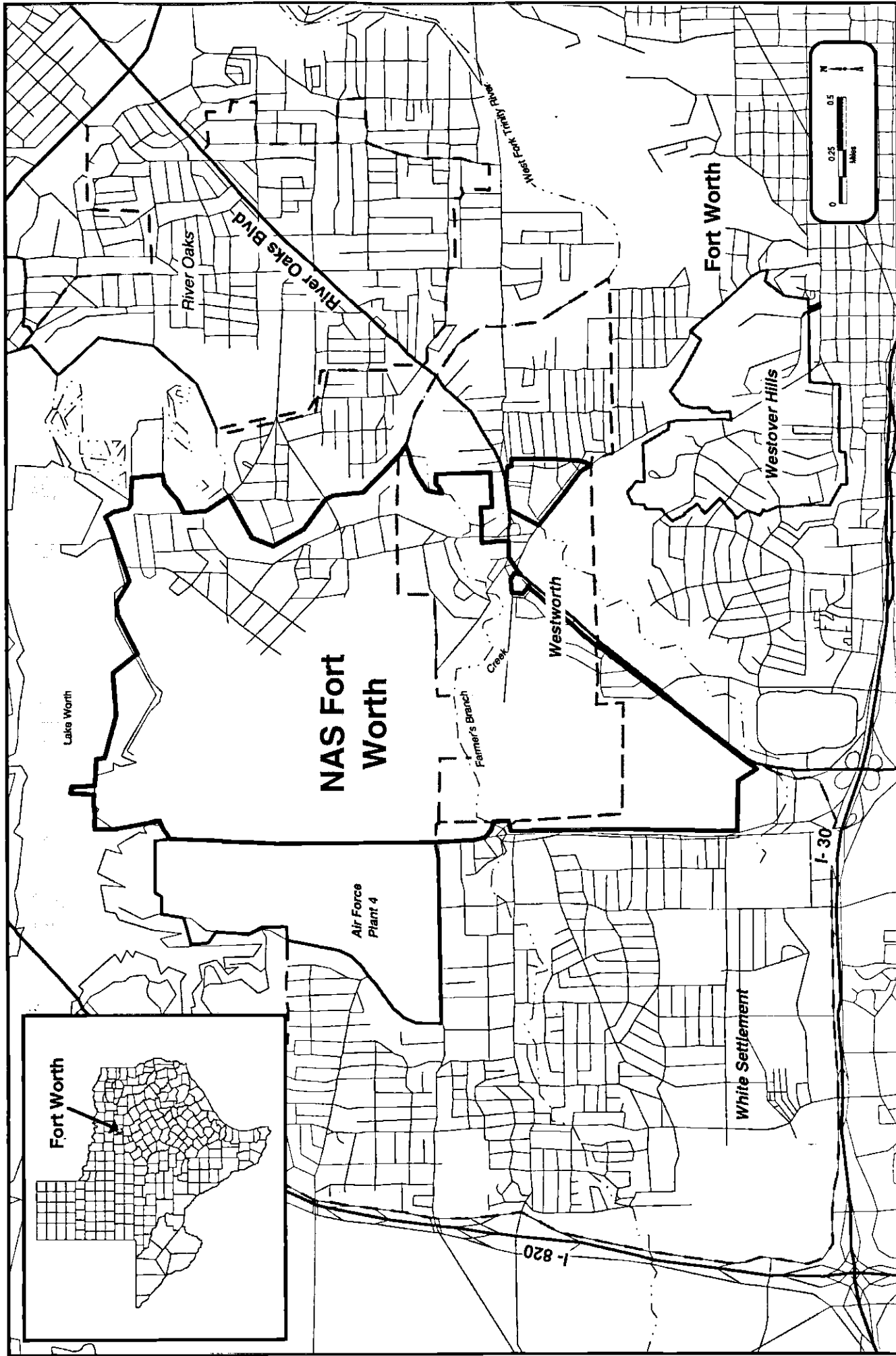


Figure 1-2 -- NAS Fort Worth Location Map

The Strategic Air Command (SAC) assumed control of Tarrant Field Airdrome in 1946, and the installation served as the HQ for the Eighth Air Force and as a heavy bomber base. In 1948, the installation was renamed Carswell Air Force Base (AFB) in honor of Major Horace S. Carswell, a Fort Worth native. HQ 19th Air Division was located at Carswell AFB in 1951 and the installation became home base for B-52s and KC-135s in 1956. The Air Combat Command (ACC) assumed control of Carswell AFB in 1992 concurrent with the disestablishment of the SAC.

Carswell AFB was selected for closure and associated property disposal/reuse during Round II of Base Closure Commission deliberations pursuant to the DBCRA of 1990. The planning process for closure and property disposal/reuse at Carswell AFB was initiated in 1992 and Carswell AFB officially closed on 30 September 1993.

The U.S. Navy assumed control of Carswell AFB on 1 October 1994 and renamed the installation NAS Fort Worth.

### **1.2.3 Regional Topography and Surface Hydrology**

NAS Fort Worth is situated in the Grand Prairie Section of the Central Lowlands Physiographic Province. The area is characterized by gently sloping broad terraces that incline to the east and are separated by west-facing escarpments. The surface is typically grass covered with isolated stands of timber on some of the uplands. Within the base, the land surface slopes gently northeast toward Lake Worth and east toward the West Fork of the Trinity River, which flows along the eastern border. Elevations range between 550 and 690 feet above sea level.

NAS Fort Worth is located in the Trinity River Basin immediately south of Lake Worth (Figure 1-2). Surface water generated on the base is discharged through a series of storm drains and natural drainage ways, such as Farmers Branch Creek. Farmers Branch Creek begins near the community of White Settlement and flows to the east. This creek drains the majority of the area included in this investigation. Portions of the base are directly adjacent to Lake Worth and the West Fork of the Trinity River. Surface runoff from adjacent areas discharges directly into these water bodies (Figure 1-3).

### **1.2.4 Regional Geology and Hydrogeology**

A layer of Quaternary sediments covers most of the surface of NAS Fort Worth. This material is thin to absent in some areas where a thin layer of organic soil caps near-surface bedrock. Cretaceous limestones and limy shales of the Goodland Limestone and the Walnut Formation form the bedrock in the areas investigated. These units are a portion of the stable Texas shelf. Bedding is essentially horizontal with regional dips of approximately 35 to 40 feet per mile toward the southeast. No major fracture zones or faults have been mapped in the proximity of the base.

Soils encountered in the present investigation range from organic-rich silty clays to fine-grained sediments of the Trinity River alluvial terraces. Typically, borings drilled in the uplands portion of the base encountered a thin profile of topsoil followed by clay-rich silts containing abundant limestone fragments. All borings met refusal against bedrock. **Refusal depths ranged from 4 to 7.5 feet in the subsurface of the RV Fam Camp area. A stratigraphic cross-section of the area is shown in Figure 1-4.**

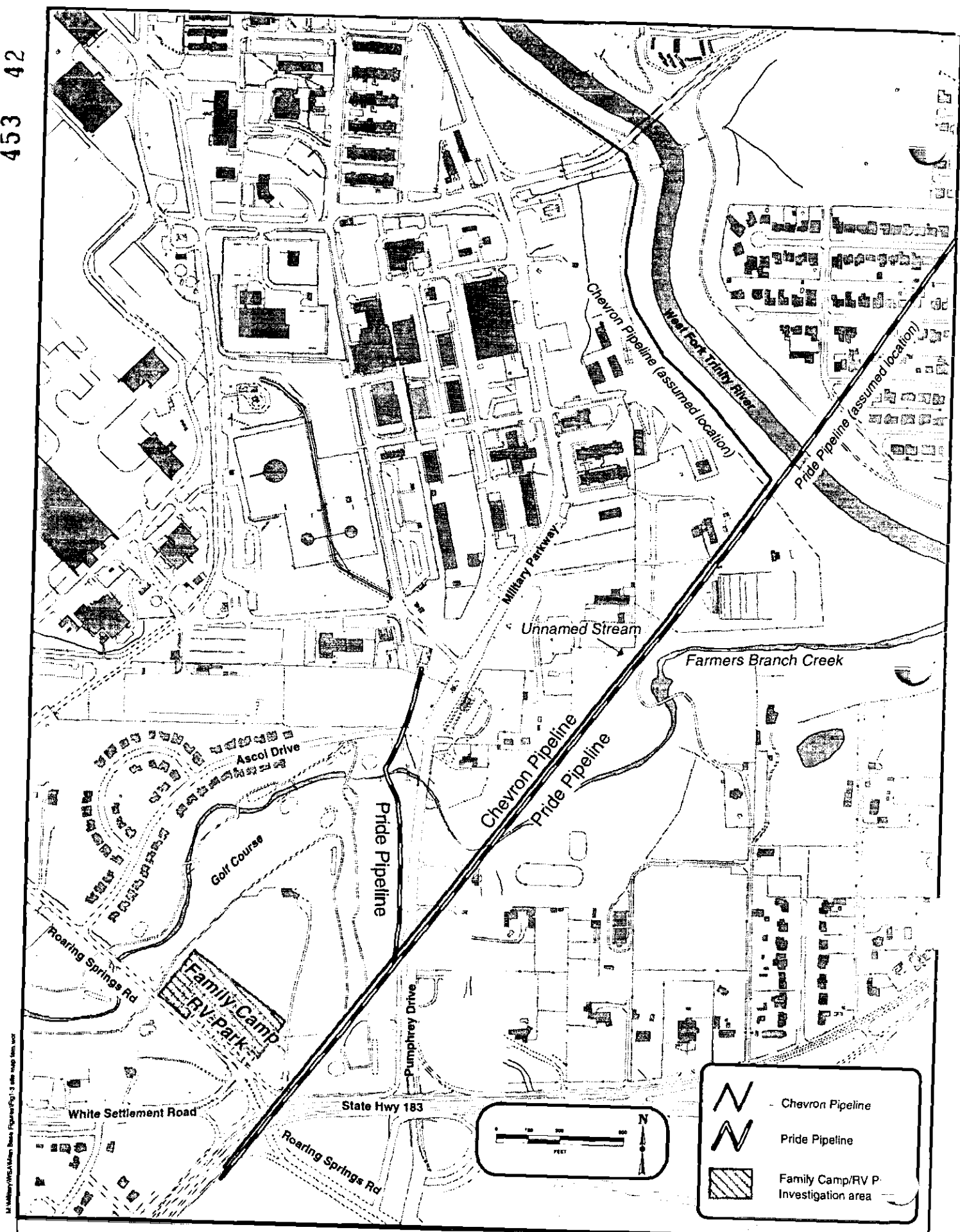
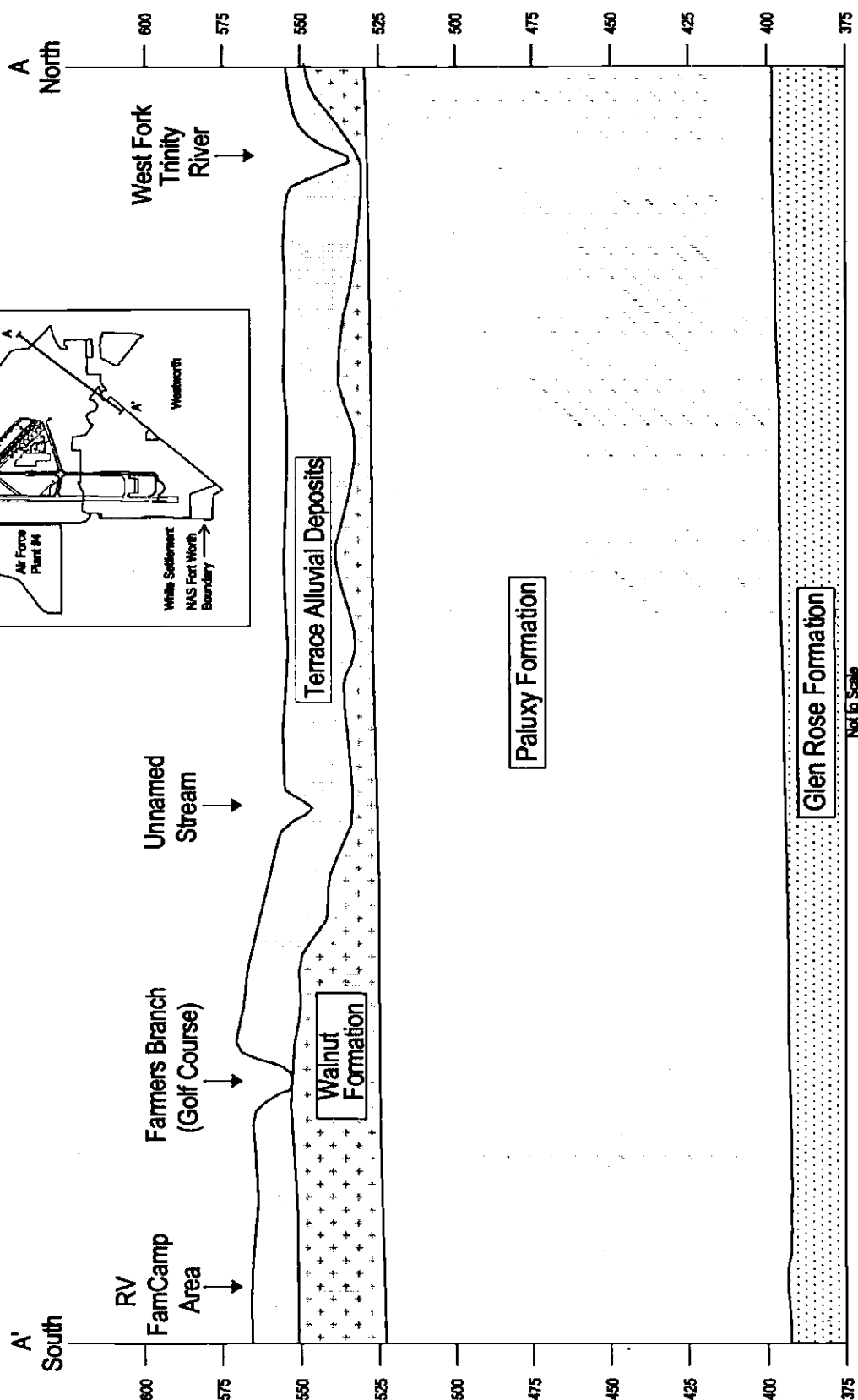
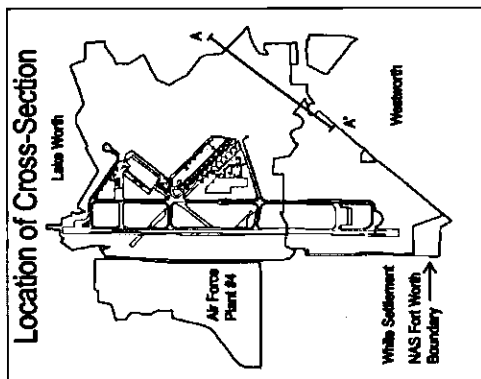


Figure 1-3 -- Site Map



Note: A detailed cross section for each area of investigation is provided in Section 4.

The principal hydrogeologic units underlying NAS Fort Worth include the Terrace Alluvium Aquifer and the Upper, Middle, and Lower Paluxy Aquifers. The Paluxy Aquifers are bedrock hosted. The Terrace Alluvium Aquifer is the uppermost aquifer and occurs in unconsolidated material and in the Goodland Formation. The unconsolidated material constituting the Terrace Alluvium is predominantly alluvial and fluvial deposits of clay, silt, sand, and gravel. The Goodland Formation is a thinly to massively bedded fossiliferous limestone. The Terrace Alluvium Aquifer is only partially saturated and is not used as a source of drinking water. Recharge of the aquifer is from precipitation and leaking water supply lines, sewer lines, and storm drains. Discharge seeps into small streams and the Trinity River. Groundwater was not encountered in boreholes drilled at the RV Fam Camp Area.

The Paluxy Aquifers are hosted by fine- to medium-grained sandstone separated by clays and shales of the Paluxy Formation. The Middle Paluxy Aquifer serves as a water supply source for the community of White Settlement. The Paluxy Aquifers are hydraulically separated from the Terrace Alluvium Aquifer by the Walnut Formation, a limestone coquina. The Walnut Formation has been subjected to subaerial erosion, suggesting the possibility of local hydraulic communication between the Terrace Formation Aquifer and the deeper Paluxy Aquifers.

#### 1.2.5 Climate

Sub-tropical humid summers and dry winters characterize the climate of NAS Fort Worth, which is situated at 33°N latitude. The average annual air temperature is 66 degrees Fahrenheit (°F). July is the warmest month, with an average monthly air temperature of 86°F. January is the coldest month, with an average monthly air temperature of 45°F. Temperature changes can be rapid in the region, often changing 20° to 30°F in a matter of hours. During calendar year 1995, temperatures averaged 66°F and varied from 48°F in February to 97°F in July. Freezing temperatures occurred during 34 days in 1995. The average annual relative humidity is 63 percent.

The average annual precipitation is 31.5 inches, with the majority of precipitation falling between April and October. There were 31.4 inches of precipitation during 1995, with the wettest month being May. The period from October to February was the driest of the year. Thunderstorms, clustering between March and July, occurred during 61 days in 1995. The maximum recorded precipitation in 1995 was 2.14 inches during one 24-hour period (May 5th). During the present investigation, two major precipitation events occurred on October 21 and 27, causing flash flooding coupled with wind and hail damage.

Prevailing winds are primarily southerly from March through November and northerly from December through February. The average wind speed is 8 knots. Thunderstorms with wind speeds in excess of 65 knots as well as hail storms are common in the region. Climate conditions in summer make tornado formations possible.

#### 1.3 SITE DESCRIPTION

The Air Force Base Conversion Agency (AFBCA) has labeled this site on DD Form 1391 as the "RV parking area (Fam Camp)." The RV Fam Camp area is located northwest of the Roaring Springs Road/Highway 183 intersection (Figure 1-3). The area encompasses approximately 3 acres (250 feet by 550 feet). Entrance drives into the

area are located off Highway 183 and Roaring Springs Road; however, they are currently blocked. The RV Fam Camp provided a camping area for Carswell AFB military personnel. The exact operational period of the area is not known; however, the area has not been used since base closure in 1993.

The camping area consisted of nine parking stalls. A utility drawing dated 1972 indicates that the area was served by individual sanitary waste dump stations and water supply (Appendix A). A central sanitary waste dump station is also shown on the service road. The individual and central sanitary stations are connected to a sewer collection pipe running from the southwest to the northeast. Remnants of these services are still present. Four-inch diameter polyvinyl chloride (PVC) sewer pipe inlets protrude from the ground surface at each parking stall. Water pipes with hose valves are also present at each stall.

#### **1.4 PAST OBSERVATIONS AND INVESTIGATIONS**

There have been no past observations or investigations related to potential environmental threat or hazards at the RV Fam Camp area. However, concern was generated following reports by past base public works personnel that the RV Fam Camp sanitary waste stations may have been connected to a leach field (Long 1996). It is not known whether the leach field would have been associated with the sewer lines shown on the 1972 drawing provided in Appendix A. Use of the area as a camp was unrestricted. Therefore, non-domestic wastes could have been disposed of by past users of the RV Fam Camp area. If a leach field system was in service at the time, such uncontrolled disposals could have impacted soil and/or groundwater in the area.

No past remedial actions have been completed within the RV Fam Camp investigation area.

# TAB

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## 2.0 PROJECT ACTIVITIES

This section provides a synopsis of the objectives, activities, and methods used in the assessment, investigation, and characterization of the RV Fam Camp Investigation Area at NAS Fort Worth. The overall goals for the project are described, as are the phase-specific objectives, an overall summary of the project field activities, laboratory analytical program, and data evaluation activities and methods. Results of each phase of the project are described in Section 3.0.

### 2.1 PROJECT OBJECTIVES

#### 2.1.1 Overall Objectives and Approach

The overall goal of this project, as defined in the AFCEE Statement of Work (SOW) for Project Number 95-8021 (Contract Number F41624-95-D-8002, Delivery Order Number 3) dated January 25, 1996, is to "determine the presence or absence and nature and extent of contamination in the RV Fam Camp Area at NAS Fort Worth, Texas" (USAF, 1996). To accomplish this goal, TEC was directed to perform a phased evaluation consisting of an SA and SC.

As the initial steps in planning the project, several delivery order scoping and plan development tasks were performed. To begin with, all available background information pertaining to the study area was compiled and reviewed. Results of this effort, presented in Sections 1.2 through 1.4 of this report, were used to develop a preliminary conceptual model of the study area and its environs to help identify critical decision points and associated data gaps related to the overall project goal. For each gap identified, specific types of information needed to fill the gap were then defined, anticipated uses of the data were described, and media-specific field characterization tasks were developed to ensure that the proper quantity and quality of information were generated to support future decision-making.

The quantity and quality of data required to fill the data gaps and to confidently accomplish the project objectives were determined based primarily on the intended data use(s), expected contaminants and levels of concern, required analytical detection limits, and preferred analytical quality levels. With respect to data quality, AFCEE defines two general data quality levels: screening and definitive. Screening data are generated by rapid methods of analysis with less rigorous sample preparation, calibration, and/or quality control (QC) requirements than are necessary to produce definitive data. Definitive data are produced using rigorous analytical methods, such as EPA reference methods. Definitive data are used in support of decisions of the highest relative importance to the project.

The RV Fam Camp area initially was characterized in conjunction with a field sampling effort conducted in October 1996. All of the analytical chemistry data generated from this effort, however, were determined to be unusable due to laboratory error. These data, which related directly to determination of a source at the RV Fam Camp, included benzene, toluene, ethylbenzene, and xylene (BTEX), volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and pesticide/polychlorinated biphenyl (PCB) analytical results. After considering the quality of these analytical results, representatives of the EPA and the Texas Natural Resource Conservation Commission (TNRCC) determined that project data from this effort are not sufficient to support the

**"No Further Action" conclusion presented in the final project report (TEC, 1998a). Therefore, a limited supplemental sampling effort was conducted in October 1998 to provide data needed to complete the characterization of the RV Fam Camp area. The analytical data from this effort, together with the other data and information collected during the SA/SI and SC phases of the investigation, are presented in this report.**

Results of the initial project scoping and planning efforts are documented in TEC's project Work Plan (WP), dated July 1996 (TEC, 1996c). Two primary companion documents also were developed and used in conjunction with the WP to implement the RV Fam Camp SC: the Field Sampling Plan (FSP) (TEC, 1996a) and the Quality Assurance Project Plan (QAPP) (TEC, 1996b). **The activities associated with the supplemental sampling are documented in the Draft Work Plan Addendum (TEC, 1998c).** The remainder of Section 2.1 summarizes the specific objectives and approach of each project phase. Project samples, types, numbers, and quality requirements for the supplemental sampling are summarized in Section 2.2.

### **2.1.2 SA Phase Objectives and Approach**

The AFCEE/TEC contract SOW defined three primary goals for the SA phases of the project. They were to:

- identify all potentially contaminated areas;
- identify areas that potentially require emergency response; and
- develop a conceptual site model of the RV Fam Camp investigation area.

**Two site assessment field tasks were identified in the WP to satisfy these objectives. These tasks included a land survey and a visual reconnaissance of site conditions. An SI, which consisted of a soil gas survey of the Fuel Pipeline Investigation areas (TEC, 1998a), was not conducted in the RV Fam Camp area.**

### **2.1.3 SC Phase Objectives and Approach**

Results from the SA phase were used to define areas within the RV Fam Camp area that needed further attention during the SC phase. Accordingly, the SC phase was intended to characterize environmental conditions, to define the nature and extent of contamination, and to estimate the risk to human health and the environment through the collection, analysis, and evaluation of site-specific environmental media samples.

To accomplish the SC phase objectives, a geophysical survey was performed in areas targeted for subsurface characterization, and subsurface soil samples were collected for physical/chemical analyses.

## **2.2 FIELD ACTIVITIES**

This section summarizes the field activities performed in both the SA (Section 2.2.1) and SC (Section 2.2.2) phases of the project. Included are brief descriptions of the sample/measurement types, numbers, locations, methods, and rationale. Also included is a brief discussion of the project record keeping procedures (Section 2.2.3), a listing of the major responsibilities of field team members and subcontractors in implementing the field program

(Section 2.2.4), a chronology of the field activities (Section 2.2.5), and a synopsis of key aspects of the field quality assessment/quality control (QA/QC) program (Section 2.2.6). Results of the field activities are discussed in Section 3.0.

All field investigative and support activities were performed as outlined in the SOW for Project No. 95-8021 and as described in the TEC WP, WP Addendum, FSP, and QAPP (TEC, 1996a,b,c and 1998b), unless otherwise noted in this report. The work was conducted in accordance with the guidelines provided in the HQ AFCEE *Handbook for the Installation Restoration Program (IRP) Remedial Investigations and Feasibility Studies (RI/FS)*, dated September 1993 (hereafter referred to as the *AFCEE Handbook*).

The investigation of the RV Fam Camp area was performed consistent with Texas Administrative Code (TAC), Title 30, Chapter 335. Chapter 335 was referenced because the site is not regulated as a Leaking Storage Tank Program (LSTP) site; and potential contaminants associated with the area could include hazardous constituents other than those related to petroleum products.

#### 2.2.1 SA Phase Field Program

Two field activities were performed during the SA. These include:

- Land Survey; and
- Site Reconnaissance.

Based on results of these activities, a geophysical survey and subsurface soil characterization were performed in the SC. A geophysical survey was conducted during the SC to aid in identifying the most appropriate locations for soil borings and subsurface soil sampling. Table 2-1 summarizes the data quality objectives (DQOs) for each SA task as presented in the project WP. The locations, types, numbers, and methods of collecting field measurements and samples during each task are described below.

**Table 2-1 SA Phase Data Quality Objectives**

Activity	Data Type	Intended Use	Quality Category
Land Survey	State Plane Coordinates	Precisely Locate Easements, Sample Locations	Screening
Site Reconnaissance	Visual Observations	Qualitatively Identify Areas of Stress or Other Abnormalities	Screening

##### 2.2.1.1 Land Survey

A land survey was performed throughout the study area to identify existing easements, property boundaries, and adjacent landowners in anticipation of future field activities. The survey was performed by Baird, Hampton & Brown, Inc. (BHB), a State of Texas-registered land surveyor. BHB field staked and surveyed property boundaries and soil boring locations evaluated during SC activities.

#### **2.2.1.2 Site Reconnaissance**

A visual reconnaissance of the overall study area was performed to note areas of stressed vegetation, discolored soils, and/or other indicators of contamination. These observations were used to focus subsurface characterization activities. The visual reconnaissance consisted of a walk-over of key site areas suspected of being actual or potential sources of contamination. Observations of stressed conditions and also of overall site accessibility, use, sampling restrictions, security, and other logistical factors were recorded in the field log books.

#### **2.2.2 SC Phase Field Program**

Background research conducted as part of the project scoping activities indicated that, in the early history of the RV Fam Camp area, sewage receptacles reportedly were connected to a septic tank and leach field. However, the precise location of the leach field could not be verified during the SA phase of the investigation. Therefore, it was determined that the RV Fam Camp area needed additional study during the SC phase. Two SC phase field activities were performed:

- Geophysical Study; and
- Subsurface Soil Characterization.

Table 2-2 summarizes the SC DQOs for each task as presented in the project WP. The locations, types, numbers, and methods of collecting SC phase field measurements and samples are described below.

##### **2.2.2.1 Geophysical Survey**

A geophysical survey was performed in the RV Fam Camp area to determine whether the alleged leach field existed and to confirm the location of underground utilities. The results of the survey were intended to be used to identify appropriate borehole drilling locations for the subsurface soil investigation.

The geophysical survey was performed by ULS Services Company in October 1996 using a combination of analog and digital electromagnetic (EM) techniques, as well as ground penetrating radar (GPR) methods. Analog EM methods included electromagnetic pipe and cable location (EMPCL) and electromagnetic induction metal detection (EMIMD). The EMPCL technique, including passive, ground induction, and connection modes, was used to identify conductive utilities. In addition, the EMIMD technique (air to ground induction mode) was used to detect broad metal mass anomalies that may represent USTs or vaults that were not previously known to exist (ULS, 1996). EMIMD was also used to detect high conductive soil or metallic residual soil areas that may be indicative of former UST or septic tank pit areas.

Survey results were read using a high-watt signal generator with multifrequency receiver and bar-suspended transmitter and receiver type unit. EM line signals representing utilities were marked on the ground surface and field drawings were prepared for the field sampling effort. Digital data were downloaded into Surfer for Windows and Autocad LT software for analysis and presentation. Appendix B presents a copy of the ULS Services letter report, dated November 12, 1996, documenting the objectives, activities, methods, and results of the SC phase

Table 2-2 SC Phase Data Quality Objectives

Activity	Data Type	Intended Use	Characterization Event	Quality Category
Utility Location Survey	Geophysical Instrument Readings at Field Reference Points	General Locations of Underground Utilities	Initial October 1996	Screening
Geophysical Survey	Geophysical Instrument Readings at Field Reference Points	General Location of Potential Abandoned Leach Field	Initial October 1996	Screening
Surface Soil Screen	Photoionization Detector (PID) Measurements	General Presence or Absence of VOCs	Initial October 1996	Screening
Subsurface Soil Characterization	Physical Parameters	Characterize Geology and Contaminant Migration Potential	Initial October 1996	Screening
Subsurface Soil Characterization	Chemical Parameters	Magnitude and Extent of Chemical Contamination; Risk Assessment	September, October 1996	Screening

geophysical surveys. Appendix B also provides a copy of a site map, prepared by ULS Services, depicting survey results.

As an added precaution, Little Bear Construction verified the location of the utilities prior to collection of the subsurface soil samples during the supplemental sampling effort in October 1998.

#### **2.2.2.2 Subsurface Characterization**

Based on the cumulative results of all of the above-noted SA and SC phase activities, a subsurface soil investigation was performed at the RV Fam Camp area to characterize the near-surface lithology, to confirm the presence or absence of a leach field, and identify potential contamination associated with the RV Fam Camp area. Five soil borings were established during the initial SC field event. Samples collected from these borings were screened for VOCs and characterized with respect to lithology. Samples were then collected for definitive chemical analysis based on the PID screening. As indicated in Section 2.1.1, these definitive data were determined to be unusable. Therefore, additional samples were collected from co-located soil borings in a supplemental SC field effort.

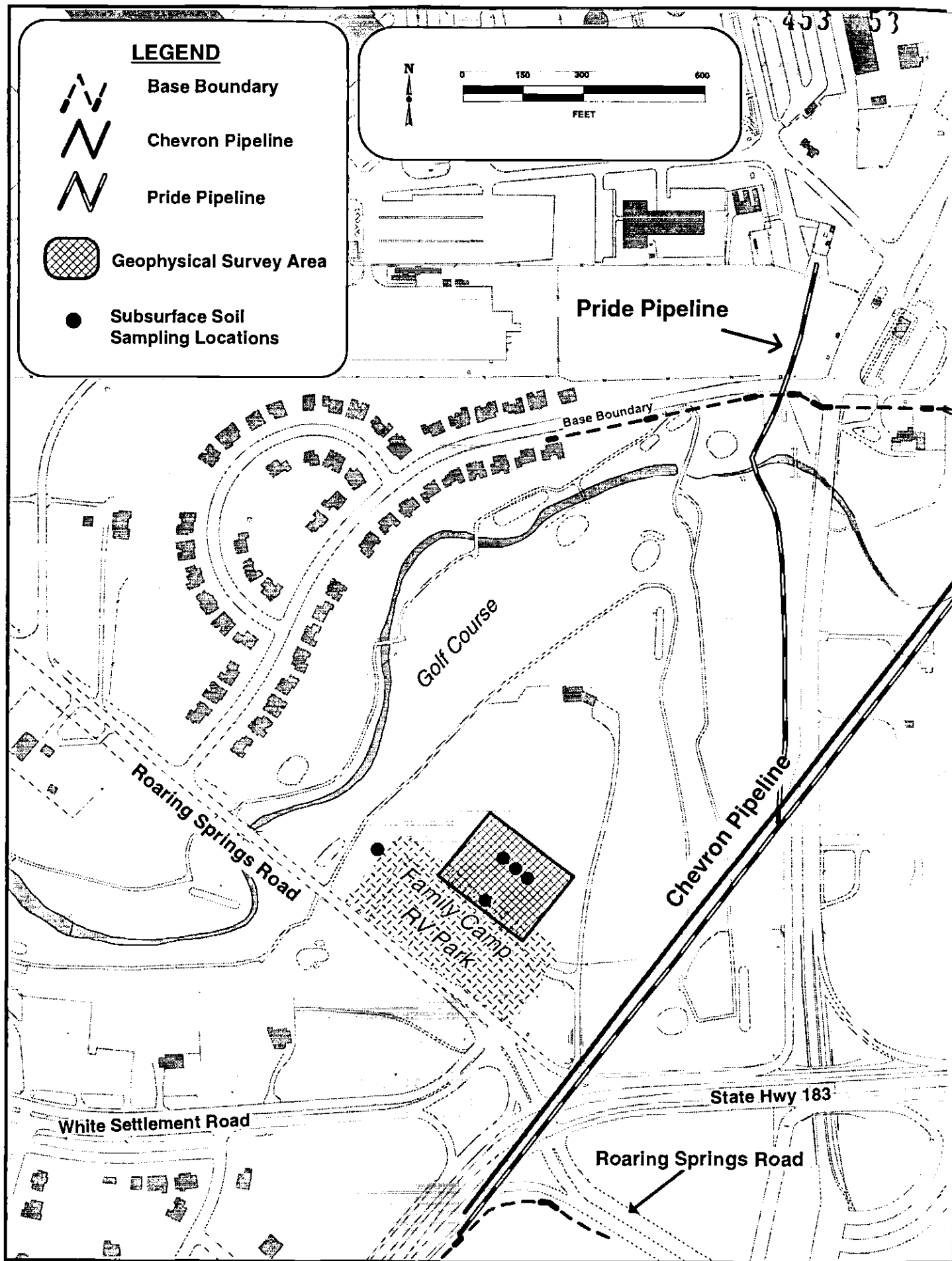
Five soil borings were drilled at the five sample locations established during the initial field sampling event using the utilities survey results generated by ULS Services Company. The areas around each location were cleared for utilities. Coordinates and elevations of all subsurface soil sampling locations for the project are provided in Appendix D. Figure 2-1 depicts the soil boring locations.

**In October 1996, the initial boreholes were advanced using the hollow-stem auger (HSA) drilling technique by Rone Engineers, Inc. The HSA method offers greater lithologic control during sample collection because sampling tools (e.g., split-spoon sampler) can be inserted while the augers are in place supporting the borehole walls. All drilling activities conformed with state and local regulations and were supervised by a state-licensed geologist/engineer.**

**Supplemented characterization soil samples were collected in October 1998 by Maxim Technologies using split-spoon samplers driven by direct-push technology (DPT). Subsurface soil samples were collected continuously to depths equivalent to:**

- **the deepest October 1996 soil sample interval; or**
- **refusal (whichever is encountered first).**

As indicated above, the soil samples collected during the initial SC sampling effort were screened for organic vapors using the PID. Field screening was performed by filling a precleaned glass jar approximately half full with a soil sample, quickly covering the jar top with aluminum foil, and securing the foil seal with the screw cap. The soil samples were then vigorously shaken for approximately 30 seconds and allowed to equilibrate a minimum of 15 minutes and a maximum of 2 hours (120 minutes) to a temperature of approximately 25°C. The jar headspace was then screened for organic vapors by puncturing the foil seal with the PID probe, inserting the tip to a distance approximately one-half the headspace depth, and recording the highest reading displayed on the instrument meter. The PID results were used to determine the



**Figure 2-1 -- Site Assessment and Characterization Area**

appropriate soil column intervals from which to collect soil samples for definitive analysis. This information was also considered in the supplemental sampling event when selecting sample intervals.

A total of five subsurface soil samples, excluding QA/QC samples, were collected as part of the supplemental SC effort. Table 2-3 summarizes the type and number of subsurface soil samples collected and lists the general analytical requirements for each sample type. Appendix C provides a comprehensive summary and cross-reference of all sample identification information collected during the SC phase of the project.

**Table 2-3. SC Phase Sample Collection and Analysis Summary**

Sample Element	No. of Samples	Number of Analyses			
		VOCs	SVOCs	Inorganics	Pest./PCBs
		8260	8270	6010/7471	8081/8082
Field Samples	5	5	5	5	5
Duplicates	1	1	1	1	1
Trip Blanks	1	1			
Ambient Blanks	1	1			
Equipment Blanks	1	1	1	1	1

Note: Only one ambient sample was collected; it applies to all areas.

One to two samples from each borehole were collected for definitive chemical analysis. The samples generally were collected at intervals that would aid in identifying any potential source and characterizing contamination.

Split-spoon soil samples selected for definitive VOC analyses were placed in appropriate sample containers in accordance with procedures defined in the FSP. These containers were filled to minimize headspace, affixed with a completed sample label, placed in a plastic bag, and placed in an iced cooler held at a temperature below 4°C. VOC samples were not composited.

Samples collected for other definitive analyses (i.e., SVOCs, inorganics, pesticides/PCBs as shown in Table 2-3) were collected concurrently with the VOC samples. Sample handling, packaging, and shipping procedures were as defined in the FSP. In some cases, composites were formed to provide sufficient sample volume for a particular analysis. **The composite procedure involved mixing and homogenizing the soil from identical depths from adjacent borehole using a stainless steel bowl and stainless steel trowel or scoop.** The composite sample was then transferred into the appropriate sample container, sealed, labeled, and placed in an iced cooler at 4 degrees Celsius (°C). Samples were delivered to the laboratory and analyzed for selected compounds (Section 2.3.1).



All initial SC event screening data (field headspace screening results, soil texture, density, consistency, and color) was recorded on soil boring logs. These logs are presented in Appendix E. Initial SC event PID screening results are discussed in Section 3.0.

Throughout the drilling and sampling process, all drilling equipment that contacted samples was decontaminated in a designated decontamination station using procedures outlined in the FSP. The station consisted of a pad that was lined with heavy-gauge plastic sheeting and designed with a collection system to capture decontamination waters. The drilling rigs and associated drilling equipment were steam-cleaned between borings to minimize the potential for cross-contamination. All decontamination fluids were contained and temporarily stored on Carswell AFB property. Other investigation-derived waste included soil cuttings generated during drilling, which were also collected and stored on AFB property. These wastes were characterized and disposed of as non-hazardous wastes in accordance with TNRC regulations (Appendix M).

### 2.2.3 General Record Keeping

Field records were maintained in sufficient detail to recreate all sampling and measurement activities and to meet all Installation Restoration Program Information Management System (IRPIMS) data loading and HQ AFCEE requirements. The types of hard copy field records developed included:

- Project log books, including the master Site Log Book, the Health and Safety Log Book, and the Geologic Log Book;
- Field Sampling/Data Forms; and
- Sample Chain-of-Custody forms.

The Site Log Book is the master field investigation document that is a bound book with a hard cover and sequentially numbered pages. The primary objective of the Site Log Book is to maintain, within one document, the actual field data or references to other field documents that contain a specific description of every activity that has occurred in the field on any given day. Any administrative occurrences, conditions, or activities that affected the field work were recorded in the Site Log Book. All field activities entered into the Site Log Book were signed and dated by the responsible party. Other appropriate information, as specified in the FSP, was also recorded in the Site Log Book.

The purpose of the Health and Safety Log Book is to document the proper use, maintenance, and calibration of health and safety instrumentation, record results of regular safety briefings, and describe conditions relating to potential worker and/or site visitor health-and-safety-related issues during the performance of field work. The Geologic Log Book is used to document drilling procedures, site conditions, lithologic observations, subcontractor performance, and other issues related to the subsurface soil characterization effort.

The log books contain all of the information specified in the FSP, including:

- Location;
- Date and time;
- Persons performing activity;

- Weather conditions;
- Sample type and sampling method;
- Sample identity and depth(s);
- Amount of each sample;
- Sample description (e.g., color, odor, clarity);
- Identification of sampling devices; and
- Identification of conditions that might affect the representativeness of a sample (e.g., refueling operations, damaged casing).

For field measurements, the numerical value and units of each measurement and the identity of and calibration results for each field instrument were also recorded.

In addition to the above-referenced log books, standardized field data forms for all field activities were maintained. As specified in the FSP, the forms consist of the following:

- Boring Log;
- Waste Inventory Tracking Form;
- Field Sampling Report;
- Chain-of-Custody Form;
- Health and Safety Monitoring Sheet;
- Instrument Calibration Log; and
- Equipment Decontamination Log Sheet.

Completed field data forms are presented in Appendix F. Chain-of-Custody forms are provided in Appendix G. Original copies of all field records and project log books are maintained at TEC's Issaquah, Washington office. These log books are in an easily accessible form that can be made immediately available to the Air Force upon request.

Procedures for completing and maintaining field records were as specified in the FSP (TEC, 1996a). Records were kept for all field activities as a means to maintain full documentation of project QA/QC procedures and compliance. Errors in records were corrected by crossing them out with a single line and then dating and initialing. The documents used during the SA/Sl and SC field investigations remained on site during the entire effort so that they could be reviewed by interested parties. Forms were organized and kept in a central file also located on site.

#### **2.2.4 Project Team Members**

The site assessment and characterization efforts were performed by TEC personnel, as well as task-specific subcontractor specialists operating under the direct supervision of the TEC Project Manager. Key project personnel and specialty subcontractors included in this effort are identified below along with their respective project responsibilities.

- Project Director - Jack Wilson, P.E.
- Project Manager - Bob Duffner, P.E.
- Principal Geologist - King Troensegaard, CPG
- Senior Chemist - Glenn Metzler

- Senior Toxicologist - Dawn Nelson
- Surveying Subcontractor - Baird, Hampton & Brown
- Analytical Subcontractor - Severn Trent Laboratories
- Drilling Subcontractor - Rone Engineers, Inc. and Maxim Technologies
- Geophysical Subcontractor - ULS Services Company and Little Bear Construction

#### **2.2.5 Chronology of Field Work**

Field work associated with the RV Fam Camp Investigation occurred in August and October 1996 and October 1998. The chronology of specific SA and SC phase field tasks is as follows:

- Land Survey - August 14, 1996 to August 16, 1996
- Site Reconnaissance - August 14, 1996 to August 16, 1996
- Geophysical Survey - October 21, 1996
- Initial Subsurface Soil Characterization - October 22, 1996 to October 30, 1996
- Supplemental Subsurface Soil Characterization - October 23, 1998

#### **2.2.6 Field Quality Assurance/Quality Control**

To ensure that sampling and monitoring activities regularly meet the prescribed DQOs, TEC maintains a formal, comprehensive field QA/QC program for field measurements and environmental sampling and analysis. Key components of the program include developing a project-specific QA Project Plan in accordance with EPA and AFCEE guidance; establishing DQOs; applying pre-defined standard operating procedures (SOPs) for field sampling, record keeping, and laboratory analysis; conducting multiple levels of technical review of project activities, results, and deliverables; and implementing independent QA audits/corrective actions.

For this project, QC responsibility rested primarily with the project manager and field task leaders. These individuals were closest to the field tasks and were therefore most capable of controlling the overall quality of the work. They implemented their QC responsibility through five primary methods: clear and accurate instructions, integrated planning, close coordination/communication with the client, spot checking of work in progress, and review of all products and deliverables.

QA, in comparison, is oriented toward ensuring that quality products are developed. QA is therefore best applied by personnel who are not directly connected to the specific activities being evaluated. For the RV Fam Camp Investigation, QA was the responsibility of TEC's Project Director. He ensured that all AFCEE policies, procedures, and objectives were met in all project tasks. To accomplish this, he received and reviewed copies of all written correspondence, audited office-based activities as appropriate, documented audit findings, and recommended corrective actions. Additional detail pertaining to specific QA/QC program activities, problems encountered, and corrective actions taken is provided below.

##### **2.2.6.1 Quality Control Activities**

To ensure that samples of appropriate quality and reliability were obtained, all RV Fam Camp Investigation field activities included the following QC elements:

- Use of AFCEE- and EPA-approved sample collections, field measurement methods, and containers;
- Use of properly calibrated and maintained field instruments appropriate for the anticipated task and DQO;
- Calibration of field instruments to within acceptable limits according to EPA and/or manufacturers' recommendations before, during, and after use in the field;
- Routine periodic inspection and maintenance of all equipment and instruments in accordance with manufacturer's recommendations;
- Use of EPA-accepted sample-handling, preparation, and preservation methods;
- Collection of all important associated environmental data (e.g., weather conditions, sample location observations, unique or abnormal conditions) using acceptable and applicable methods and equipment;
- Use of Department of Transportation (DOT)-approved sample shipment procedures;
- Use of formal chain-of-custody procedures in the field and during shipment;
- Collection of appropriate numbers and types of field QC samples; and
- Maintenance of adequate records and logs of all field-related activity.

In addition to adhering to well-defined SOPs, a number of equipment and/or field measurement-specific QC checks were performed. These included periodic calibration of field instruments and operational checks performed according to the manufacturer's instrument manuals and the AFCEE IRP *Handbook* (1993).

All field instruments were calibrated on a daily basis while in use. The PID was calibrated at least twice per day. In some instances, calibration was performed more frequently. Calibration, repair, and service records were kept in individual site log books as described above, and on Instrument Calibration Log Sheets (Appendix F). Each instrument's individual identification number was transcribed on field data records when it was used for a sampling event. Calibration data were compared to the manufacturer's equipment calibration control limits. Field equipment that consistently failed to meet calibration standards or exceeded the manufacturer's control limits was promptly repaired or replaced.

Field QC samples included equipment blanks, trip blanks, and ambient blanks. **Table 2-3 summarizes the type and number of field QC samples collected during the October 1998 supplemental soil sampling.** All of the field QC samples were applied to all of the environmental samples collected (Appendix L).

Equipment blanks were collected to assess the effectiveness of equipment decontamination procedures. One equipment blank was collected (Table 2-3) during subsurface characterization activities at the RV Fam Camp area. The equipment blank was created by pouring a sample of American Society of Testing and Materials (ASTM) Type II reagent grade water into or over the decontaminated split spoon sampler, collecting the water in an appropriate sample container, and packaging/transporting the sample to the laboratory for analysis. The equipment blank was analyzed for all laboratory parameters requested for the environmental samples collected at the study area.

Trip blanks were used to assess potential cross-contamination of environmental samples during transportation and storage. One trip blank was submitted (Table 2-3) with the cooler of samples

sent to the laboratory for analysis of VOCs. The trip blank consisted of a VOC sample vial filled in the laboratory with ASTM Type II reagent grade water, transported to the sampling site, handled like an environmental sample, and returned to the laboratory for analysis. The trip blank was not opened in the field and was prepared only when environmental samples were collected and submitted for VOC analysis. Consequently, the trip blank sample was analyzed only for VOC analytes.

Ambient blanks were used to assess the potential introduction of contaminants from ambient sources to the samples during collection (e.g., active runways, engine test cells, internal combustion motors in operation). A single ambient blank was collected during the supplemental SC field investigation for both the RV Fam Camp and Fuel Pipeline studies. The sample was collected downwind of potential VOC sources that could have impacted the field samples. This location was at the Farmers Branch Creek area, just south of Ascol Drive (TEC, 1999). Because the study area is located in a commercial area of the City of Fort Worth, numerous potential sources of airborne contamination are possible. The ambient blank consisted of ASTM Type II reagent grade water poured into a VOC sample vial at the sampling site. It was handled like an environmental sample and transported to the laboratory for VOC analysis.

#### **2.2.6.2 Quality Assurance Activities**

Two types of QA audits typically are performed as a part of TEC's overall QA program: generic and project-specific. Generic audits are performed periodically for each engineering or environmental program and technical services area in the company. Their frequency is determined by the results of previous audits, with a minimum of one per environmental program/technical service area per year. The need for more frequent audits is determined based on the following considerations:

- The importance of the activity to the successful completion of stated corporate objectives;
- Significant changes in the functional areas of the quality assurance program, such as significant reorganization or procedural revisions;
- A suspected nonconformance in an item or service; or
- The necessity to verify implementation of required corrective action.

Project-specific audits are performed at a frequency dictated by contractual agreements and as noted in the project QAPPs. No project-specific audit was performed for this investigation.

#### **2.2.6.3 Problems Detected and Corrective Actions Taken**

Comparison of equipment calibration records (Appendix F) with manufacturer-specified calibration control limits indicated no significant problems with field equipment and/or instrumentation that required corrective action.

### **2.3 LABORATORY ANALYSIS**

This section describes the analytical program developed to accomplish the objectives of the RV Fam Camp Investigation SA and SC project. Included are brief descriptions of the overall analytical program including the laboratories involved, and the analytical parameters and methods specified, the chronology of the laboratory analyses, and the QA/QC program that supported the analytical program.

### 2.3.1 Analytical Program

As noted previously, two types of analytical data quality levels were identified for this project: screening and definitive. Screening analytical data included field measurements of organic vapors in the headspace of subsurface soil samples and particle size distributions for subsurface soil samples. Definitive data consisted of chemical characteristics of subsurface soil samples.

The subsurface soil samples collected for definitive characterization during the supplemental field effort were analyzed for VOCs, SVOCs, inorganic compounds, pesticides, and PCBs.

The analytical work was performed utilizing the *United States Environmental Protection Agency (USEPA) Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (SW-846, Third Edition). Appendix H provides a comprehensive list of the analytical parameters and analytical methods for each sample. Table 2-3 summarizes the general analytical requirements for each subsurface soil sample. All laboratory analyses for definitive quality level data associated with samples collected during the supplemental field effort were performed by Severn Trent Laboratories (formerly RECRA Labnet). A summary of extraction and analysis dates listed by field sample number and laboratory number is provided in Appendix I. Raw data are provided in Appendix J.

In addition to the above analyses, grain size analyses (Appendix K) were performed on selected samples collected during the initial SC sampling event to provide data regarding contaminant migration potential and to support preliminary development of remedial options.

### 2.3.2 Chronology of Laboratory Analyses

Environmental samples associated with definitive chemical analyses were collected in October 1998. Appendix I provides a comprehensive chronology of associated laboratory extraction and analysis dates for each field sample.

### 2.3.3 Quality Assurance/Quality Control Program

For all analytical work, whether carried out in the laboratory or in the field, strict adherence to established analytical program QA/QC is required. Analytical QC checks for both screening and definitive data are defined in the project QAPP and included blank, spike surrogate, replicate, and matrix spike duplicates samples in accordance with a predetermined schedule. The results are tabulated and placed on control charts so that any deviations from routine analytical performance can be identified and rectified. Procedures for routine instrument tuning, calibration, and maintenance are also carefully applied and documented.

Appendix L provides a summary of laboratory QA/QC samples collected for this project. QC procedures for screening samples are summarized in Table 2-4. Included are lists of the types of QC samples collected, the frequency of QC sample analyses, problems detected, and corrective actions taken.

## 2.4 DATA EVALUATION

This section briefly discusses the procedures used to identify, reduce, interpret, and use field and analytical data generated during the project. Included are discussions of the methodology for data quality assessment, methodology for risk evaluation, and data analysis and interpretation.

Table 2-4. Summary of Calibration and QC Procedures for Screening Method

Method	Applicable Parameter	QC Check	Minimum Frequency	Acceptance Criteria	Corrective Action <sup>a</sup>
None	Org. vapor conc. (FID and PID)	2 point calibration	Monthly	Response $\pm 20\%$ of expected value	Recalibrate; replace if necessary
		Calibration verification and end check	Daily at beginning and end of day	Response $\pm 20\%$ of expected value	Correct problem, recalibrate

<sup>a</sup> All corrective actions were documented in field records.

#### 2.4.1 Methodology for Data Quality Assessment

QC field samples (i.e., trip, equipment, and ambient) were collected and analyzed to support a quality assessment review of the field screening and definitive laboratory data. A review of the analytical data was performed to ensure that all analyses were performed within the control limits identified in the project QAPP.

#### 2.4.2 Data Analysis and Interpretation

Data collected during the SA phase included background information primarily obtained through a review of existing investigation documents, records, and other undocumented reports. This information was reviewed to identify potential areas of concern associated with the RV Fam Camp area.

The general quality and reliability of these data sources were evaluated through examining items such as the relative age of the data, considering the methods by which the data were obtained, and assessing of the degree of comparability of data from different sources.

As necessary and appropriate, data generated during this project were evaluated by preparing descriptive statistics, charts, graphs, tables, and other interpretive tools, many of which are presented in this report. These included:

- Boring logs;
- Vertical cross sections depicting geologic conditions; and
- Tabulated data summarizing sample physical/chemical evaluations, trends, spatial relationships, and statistics.

Data collected during the SC phase included geophysical survey results, lithologic characteristics, subsurface soil organic vapor readings, and subsurface soil analytical results. Geophysical results were analyzed by comparing instrument readings collected from the investigation area to readings collected from adjacent background areas. Deviations or anomalies in the data were interpreted as indications of potential source areas. Source areas in this context are potential underground utilities, undifferentiated metal mass, and the suspected abandoned leach field. These potential source areas were further investigated during the subsurface soil investigation.

During the SC subsurface soil investigation, samples were collected and characterized with respect to lithology, organic vapors, and chemical constituents. Lithologic data were plotted as geologic cross sections and interpreted with respect to the location of contaminants detected through organic vapors and/or chemical analyses. Chemical data were compared to background levels (Section 2.4.3). Results of these evaluations, discussed in Section 3.0, were used to refine the conceptual model of the site and to identify potential contaminant release and migration routes (Section 4.0).

Organic vapor readings were analyzed relative to background and ambient conditions. Organic vapor readings of ambient conditions collected by the PID meter were found to be influenced by soil moisture. Subsurface soil organic vapor readings exceeding background and/or ambient conditions were interpreted as indications of contamination. These readings were used directly in selecting samples for chemical characterization as described in Section 2.2.2.2.



#### 2.4.3 Methodology for Risk Evaluation

The risk evaluation for the RV Fam Camp Investigation was performed to meet the objectives of the project, which were to identify the nature and magnitude of contamination associated with the suspected leach field and to evaluate corresponding potential risks. Because of the supporting nature of the SC to other investigations at NAS Fort Worth, a streamlined approach for the risk evaluation was taken in an effort to focus on potential contamination that was not previously identified in the other studies.

Human health risks were evaluated for the RV Fam Camp Investigation area through development of risk-based cleanup levels (CULs) for subsurface soil. These CULs were compared with the site concentrations to characterize human health risks. Ecological risks were semi-quantitatively evaluated using a conservative screening level assessment as part of a tiered approach. In this approach, site concentrations were compared to established ecological benchmark concentrations to evaluate the potential impact of the detected compounds on ecological receptors.

Although the RV Fam Camp area is not currently regulated, potential risks associated with the subsurface soil in this area were evaluated using protocols specified in TAC Chapter 335, Subchapter S, "Risk Reduction Standard Numbers 1 and 2" (RRSN1 and RRSN2). This approach was employed because the site is not regulated as an LSTP site, and potential constituents associated with the area could include those not related to petroleum products.

The risk evaluation presented in this report is consistent with the requirements and procedures outlined in TAC Chapter 335, Subchapter S (TNRCC, 1993) and *Implementation of the Existing Risk Reduction Rule* memorandum (TNRCC, 1998). Both of these references, as well as this risk evaluation, generally follow standard risk assessment procedures, which include identifying chemicals of potential concern (COPCs), identifying potential receptors and exposure pathways, evaluating the toxicity of the COPCs, and characterizing risks (EPA, 1989b). The ecological risk evaluation approach is consistent with methods provided in the *Framework for Ecological Risk Assessment* (EPA, 1992) and the *Draft Guidance for Conducting Ecological Risk Assessment Under The Texas Risk Reduction Program* (McBee et al., 1996).

The Subchapter S methods rely on a multi-tiered approach to evaluating potential threats to human health and the environment. The first tier, identified as RRSN1 can be used as a simple screening tool. Under RRSN1, detected concentrations of site-related compounds are compared to background levels. Attainment of CULs, represented by background concentrations, is demonstrated if site concentrations are below these levels. If exceedances exist, RRSN2 or RRSN3 procedures may be used to develop CULs based on promulgated standards/criteria or risk-based concentrations (RBCs).

RRSN1 methods were employed as a screening tool in Section 3.0 to identify chemicals needing further evaluation of their potential human health impacts and eliminate those that would not contribute to overall human health risks. Chemicals that were not screened out were carried forward in the risk evaluation and development of RRSN2 cleanup levels (Section 5.0).

The general purpose of the RRSN1 screening step is to clean sites to levels that ensure adequate protection of human health and the environment without the use of institutional controls and to provide a mechanism for eliminating a more costly and time-consuming site-specific risk assessment if site concentrations are below the RRSN1 concentrations. RRSN1 provides little

flexibility in developing cleanup levels, but helps eliminate the time and expense needed to conduct a full-scale risk assessment.

The methods for developing the RRSN1 concentrations are discussed in the section below. Section 2.4.3.2 describes the development of RRSN2 cleanup levels and how they were used in the risk evaluation to characterize risk.

#### **2.4.3.1 Development of RRSN1 Concentrations**

This section describes the RRSN1 concentrations determined for the RV Fam Camp area. Table 2-5 summarizes the RRSN1 values for each detected analyte. These concentrations were used in Section 3.0 to identify a list of inorganic compounds to be carried forward to the risk evaluation. Background levels were not determined for organic compounds. Therefore, all detected organic compounds were carried forward to the risk evaluation.

The RRSN1 concentrations for the RV Fam Camp area were based on upper tolerance limits (UTLs) of distributions of background soil data populations estimated for Carswell AFB in the *Draft NAS Fort Worth JRB, Texas Basewide Background Study Volume 1* (Jacobs, 1997). UTLs for some of the metals were subsequently revised when samples were reanalyzed (Jacobs, 1998). The UTLs for metals in soil were accepted by TNRCC and can be used in this study (Jacobs, 1998). Both surface (defined as Horizon A, ground surface to a depth of 2 feet) and subsurface (defined as Horizon B, second encountered soil type below the organically rich surface soil) soil were sampled and analyzed for inorganic constituents. Jacobs (1997) collected 30 samples from each horizon. The analytical results were used to calculate background concentrations using the tolerance interval method to estimate UTLs with 95 percent confidence and 95 percent coverage ( $UTL_{95,95}$ ). This value represents a 95 percent confidence that 95 percent of the background population lies below the  $UTL_{95,95}$ . A site value greater than the UTL has only a 5 percent probability of being from the background population and therefore may indicate site-related contamination (Jacobs, 1997).

#### **2.4.3.2 Development of RRSN2 Cleanup Levels**

Although there is no evidence indicating that the RV Fam Camp is a source of contamination, compounds with site concentrations exceeding background UTLs were identified as COPCs in order to complete the evaluation. Following standard risk assessment methodology and RRSN2 regulations, the following steps were taken to evaluate human health risks associated with the COPCs: identify potential receptors and exposure pathways, assess the toxicity of the COPCs, and evaluate risks through development of CULs. The RRSN2 protocols rely on a hierarchical approach to developing appropriate values for CULs. Specifically, when available, Texas state or Federal promulgated health-based standards or criteria represent the primary basis for site CULs. When these values were not available for a COPC or they are not sufficiently protective, risk-based concentrations were used as the CULs.

Human health CULs for exposure scenarios identified in the risk evaluation were obtained from the most recent TNRCC interoffice memorandum guidance on implementing the existing Subchapter S Risk Reduction Rule (TNRCC, 1998). No other sources of CULs for these media were necessary

Table 2-5. TNRCC RRSN1 Concentrations for the RV Fam Camp Area

Compound	TNRCC RRSN1* (mg/kg)
<b>Metals</b>	
Aluminum	20,260
Arsenic	6.58
Barium	128.1
Beryllium	1.13
Calcium	272,000
Chromium	16.31
Cobalt	6.19
Copper	13.72
Iron	17,469
Lead	12.66
Magnesium	2,420
Manganese	351.7
Mercury	0.035U
Molybdenum	1.46
Nickel	19.76
Potassium	1,717
Sodium	53,200
Thallium	1.5
Vanadium	37.4
Zinc	31.3

**Volatile Organic Compounds**

Toluene	BND
mpXylene	BND
oXylene	BND
Methylene Chloride	BND
Trichlorofluoromethane	BND

**Semivolatiles**

Bis(2-ethylhexyl)phthalate	BND
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BND-background not determined

U-not detected above the method detection limit

\* Based on procedures specified in TNRCC Chapter 335, Subchapter S for Risk Reduction Standard Number 1 (TNRCC, 1993). Values represent background UTL95.95 for Horizon B (> 2 ft bgs) soils determined by Jacobs (1997, 1998).

because the standards incorporate the most current EPA-approved exposure algorithms, and toxicity factors and values for all COPCs, with a few exceptions, were provided.

Maximum site concentrations were compared to the CULs to characterize potential human health risks that may exist in site media. Statistically derived exposure concentrations were not generated for the comparison because of the limited number of samples collected from the RV Fam Camp area. Chemicals with maximum detected concentrations exceeding the CULs may need further evaluation. Conversely, chemicals with concentrations below the CULs were determined to be present at levels that are not expected to adversely impact human health. The results of the risk evaluation provided the basis for the recommendations and conclusions presented in Section 6.0.

# TAB

3

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### 3.0 PROJECT INVESTIGATIONS

The sections below present the findings of the project investigations. Findings of the SA were used to define the site environmental setting and identify potentially contaminated areas.

An SC was performed in areas identified in the SA as having potential contamination associated with the suspected leach field. The objective of this phase of the field investigation was to identify potential contamination and, if present, to delineate its nature and magnitude of contamination, identify the sources of contamination, and characterize environmental site conditions.

#### 3.1 SITE ASSESSMENT

The SA consisted of two activities. The first activity was a land survey. The land survey reports included a site drawing showing prominent study area features and boundaries, as well as the sampling locations identified above, and tabulated summaries of state plane coordinates for the surveyed features. The site drawing is presented in Appendix D. The site drawing includes information related to the Pipeline Investigation areas, which are described in a separate report (TEC, 1999).

The second activity was a walk-through survey of the site to document visual observations of potential soil contamination. There was no visible evidence of surface soil contamination in the RV Fam Camp area. A background search conducted as part of the project scoping activities indicated that sewage receptacles at the RV Fam Camp area may have been connected to a septic tank and leach field (Long, 1996).

#### 3.2 SITE CHARACTERIZATION

Based on the results of the SA, an SC was conducted in areas identified as needing additional investigation. The SC consisted of a subsurface soil investigation performed through the advancement of boreholes and the collection of samples for organic vapor screening, lithologic characterization, and chemical characterization. The section below provides a description of the field and laboratory data, followed by discussions of the SC results. The SC results include a description of the borehole location and lithology, a summary of screening and analytical results of the soil boring sampling, and a comparison of analytical results with RRSN1 concentrations (i.e., background UTL<sub>95,95</sub>).

##### 3.2.1 Field and Laboratory Data Quality Assessment

Field and laboratory data quality assessment was performed through collection of field QC samples and analysis of laboratory QC samples. This section summarizes the results of field blanks (trip, equipment, and ambient), which are presented in Table 3-1. A summary table that identifies individual field samples associated with each blank sample is provided in Appendix L.

The equipment blank included with the RV Fam Camp samples was analyzed for inorganics, SVOCs, VOCs, BTEX, and pesticides/PCBs (see Table 2-3). Five inorganics (barium, calcium, molybdenum, sodium, and zinc) were detected in the blank, one of which was positively identified but was detected below the practical quantitation limit (PQL). The only organic compound detected in the equipment blank was toluene, which is considered by EPA to be a common laboratory contaminant (EPA, 1989). Therefore, the toluene detects may have

Table 3-1. Summary of Quality Control Samples Detected Results

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Sample Number:	AB-100	EB-100	TB-100	TB-101
<b>Parameters<sup>a</sup></b>				
<b>Inorganics-(mg/L)</b>	NA		NA	NA
Barium		0.0083		
Calcium		0.35		
Molybdenum		0.012		
Sodium		0.93		
Zinc		0.016 F		
<b>Semivolatiles</b>	NA	ND	NA	NA
<b>Volatiles-(ug/L)</b>				NA
Chloroform	0.4 F	0.7 U	0.7 U	
Methylene chloride	0.4 F	1 U	1 U	
Toluene	1	0.8 U	0.8 U	
<b>BTEX- (ug/L)</b>				
Toluene	0.16 U	0.84	0.16 U	1.1
<b>Pesticides</b>	NA	ND	NA	NA
<b>PCBs</b>	NA	ND	NA	NA

F - The compound was positively identified, but the associated numerical value is below the PQL.

NA - not analyzed

ND - not detected

U - The compound was analyzed for, but not detected. The associated numerical value is at or below the method detection limit.

<sup>a</sup>Parameters limited to those detected in at least one sample.

been introduced during extraction and analysis. No SVOCs, other VOCs, or pesticides/PCBs were detected.

One trip blank (TB-100) was analyzed by the VOC (8260) and BTEX (8021) methods. No analytes were detected in TB-100.

Two VOCs were positively identified in the ambient blank, but were detected below the PQLs. These compounds are chloroform and methylene chloride. Toluene was reported in the ambient blank at a concentration above the PQL. **Potential sources include emissions from nearby vehicles and laboratory contamination.**

### 3.2.2 SC Results

The potential misuse of the sewer receptacles for disposal of hazardous substances, resulting in possible contamination of surrounding subsurface soil, was the basis for conducting a subsurface soil investigation in this area. Prior to drilling boreholes, a geophysical survey was conducted to identify any anomalies in the subsurface that may represent leach field trenches. The findings of the geophysical survey and the soil borehole sampling are discussed in the sections below.

#### 3.2.2.1 Geophysical Survey

After discussions with Carswell AFBCA personnel and surveying the RV Fam Camp area, it was concluded that the area to the northeast provided the only viable space for a leach field (see Appendix B). The area to the southeast was topographically upgradient from the parking areas and offered limited space for leach field drainage. Spaces to the northwest and southwest are also limited, as the surface drops approximately 10 feet in each direction (see Figure 2-1).

EM and GPR methods were used in an area approximately 35,000 square feet in size extending 185 feet along the area's paved road and extending approximately 190 feet to the northwest. A complete report of the geophysical survey, along with a detailed map showing survey area and results, is provided in Appendix B.

The EM method used in the survey located a low-grade high conductive anomaly within the area southwest of the tree hedge, which lies between two graveled RV parking stalls located perpendicular to the paved road (ULS, 1996). Although GPR was used to further characterize the anomaly, the reflector data were weak and nonconclusive, likely due to poor soil conductivity conditions. Utilities were detected during the survey and marked for use during drilling of boreholes.

#### 3.2.2.2 Borehole Location

Five boreholes were strategically advanced in the RV Fam Camp area to characterize any potential leach field as shown in Figure 3-1. These boreholes were identified as SB-16 to SB-20 during the October 1996 sampling event. The lithology information and PID readings presented in this report are associated with these borehole identifications. The boreholes co-located during the supplemental sampling event at the locations established in October 1996 were identified as SB-116 to SB-120.



# LEGEND

- Borehole Location
- Chevron Pipeline
- Pride Pipeline
- Geophysical Survey Area

## Notes:

All results in mg/kg  
Parameters listed include only organic compounds detected in at least one sample.  
ND Not detected above Method Detection Limit  
F Analytes detected above MDL and below PQL

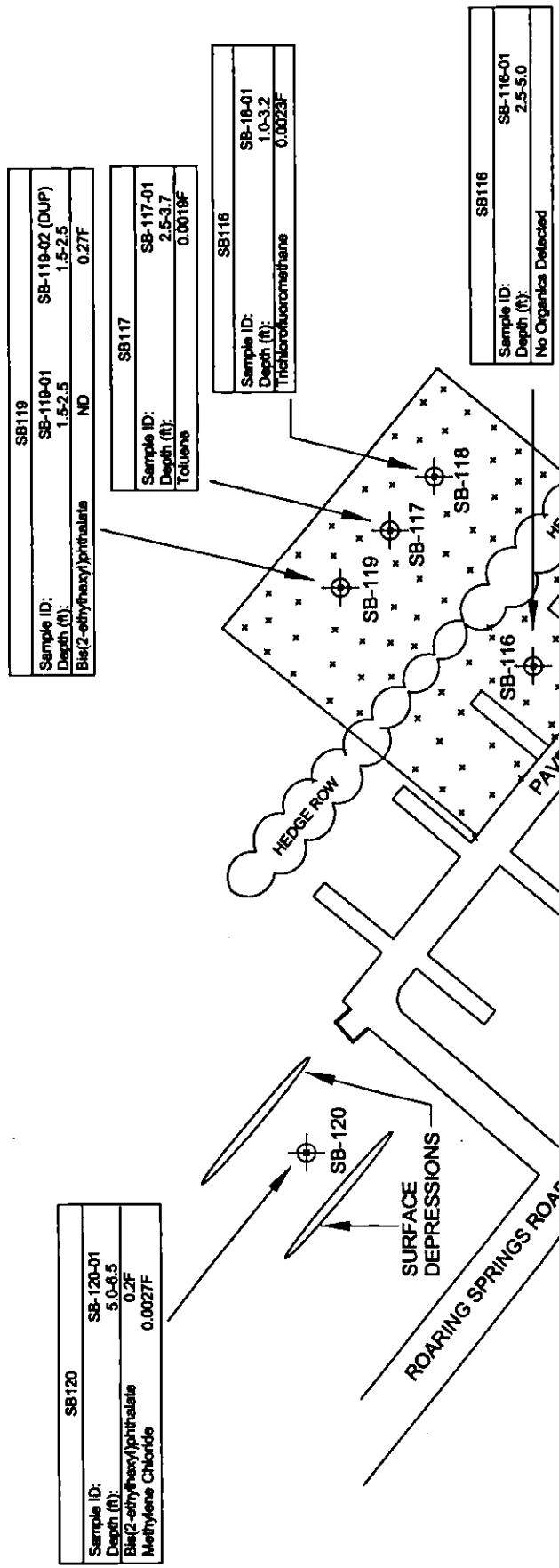


Figure 3-1 - RV Family Camp Area Subsurface Soil Organic Analytical Results

Borehole SB-16 was drilled directly in the subsurface anomaly identified by the geophysical survey. Boreholes SB-17 through SB-19 were advanced to the northeast to intersect potential leach field discharge from this area.

During the SC field investigation, two 6-inch-deep depressions in the surface to the northwest of the area were noted. The depressions were approximately 1 foot wide and 50 feet long. SB-20 was advanced between the depressions in order to characterize this area. Boring SB-20 was advanced in an entirely different soil regime. It was situated on the southeasterly flank of Farmers Branch Creek in alluvial fill deposits.

### **3.2.2.3 Lithology Characterization**

Drill cuttings at SB-16 indicated the subsurface anomaly identified within the parking area to be shallow soil covering limestone bedrock. No visible signs of a leach field or contamination associated with a leach field were noted during drilling operations at any of the boreholes.

A thin soil profile was also encountered at locations SB-17, SB-18, and SB-19. Refusals against shaley limestone were met at depths between 4 and 7.5 feet. A well-developed organic silty-clay topsoil, typical of prairie grasslands, was encountered in all borings. Beneath it were dry silts containing limestone fragments that became more abundant as bedrock was encountered.

Soil boring SB-20 encountered silts and clay-rich silts to a depth of 21 feet, where refusal was met against limestone.

### **3.2.2.4 Subsurface Soil Screening and Analytical Sample Selection**

As shown in Table 3-2, organic vapor soil screening readings remained fairly consistent with ambient conditions throughout soil boreholes SB-16, SB-17, and SB-18. Readings above ambient conditions were recorded at depths of 2 to 4 feet and 5 to 10 feet below ground surface (bgs) in borings SB-19 and SB-20, respectively. Based on this screening, Table 3-3 presents the depths selected for soil boring sample collection and the laboratory analyses specified for each sample. One sample was collected from each borehole (SB-116 to SB-120) at depths corresponding to the relatively higher PID readings. A total of five samples and one duplicate were collected and submitted for laboratory analysis of inorganics, VOCs, SVOCs, and pesticides/PCBs. Collection of additional deeper samples during the supplemental sampling event was not accomplished because of shallow refusals in boreholes SB-116 to SB-120. Grain size analysis was conducted on two of the samples collected in October 1996.

### **3.2.2.5 Data Summary**

A summary of the subsurface soil analytical results of compounds detected in the samples collected in the RV Fam Camp area is presented in Table 3-4. The detected organic compound results are also shown in Figure 3-1. The VOCs (methylene chloride, toluene, and trichlorofluoromethane) and bis(2-ethylhexyl)phthalate were reported in samples at concentrations below the PQL, indicating that detected concentrations are estimates associated with uncertainty. Methylene chloride and toluene both were reported in the field blank samples at concentrations that are more than two orders of magnitude greater than the soil sample concentrations. Therefore, these constituents in the soil samples were determined

Table 3-2. Organic Vapor Soil Screening Summary For The RV Fam Camp Area

Location	Analytical Sample Number	Sample Depth Interval (feet)		Relative Moisture Content <sup>a</sup>	Organic Vapor <sup>b</sup> (ppm)
SB-16	NS	0.0	to 2.5	M	0.0
	-01	2.5	to 5.0	D	0.0
	-02	5.0	to 7.2	D	3.4
SB-17	NS	0.0	to 2.5	M	3.6
	-01	2.5	to 5.0	D	3.8
SB-18	NS	0.0	to 2.5	M	1.0
	-01	2.5	to 5.0	D	2.0
	-02	5.0	to 6.0	D	3.4
SB-19	NS	0.0	to 2.2	M	0.0
	-01	2.2	to 4.0	D	11.0
SB-20	NS	0.0	to 2.5	D	9.0
	NS	2.5	to 5.0	D	0.0
	-01	5.0	to 10.0	D	22.4
	NS	10.0	to 12.5	D	4.4
	NS	12.5	to 15.0	M	7.7
	-02	15.0	to 17.5	M	5.0
	NS	17.5	to 20.0	M	6.3

NS: No sample collected for chemical characterization

<sup>a</sup>Relative Moisture Content: D=Dry, M=Slightly to very moist.<sup>b</sup>Measured with a photoionization detector (PID).

Table 3-3. Subsurface Soil Sample Summary for the RV Fam Camp Area

Analytical Sample Number		Sample Depth Interval (feet)		Inorganics	VOCs	SVOCs	Pest./PCBs	Grain Size <sup>a</sup>
SB-116	-01	2.5	to 5.0	√	√	√	√	
SB-117	-01	2.5	to 3.7	√	√	√	√	
SB-118	-01	1.0	to 3.2	√	√	√	√	
SB-119	-01	1.5	to 2.5	√	√	√	√	
	-02 (Dup.)	1.5	to 2.5	√	√	√	√	
SB-120	-01	5.0	to 6.5	√	√	√	√	

Pest.: Pesticides

SVOCs: Semivolatile Organic Compounds

VOCs: Volatile Organic Compounds

<sup>a</sup>Analyzed for in samples SB-16-02 and SB-20-02 collected during the initial soil sampling event in August and October 1996.

Table 3-4. Summary of RV Fam Camp Subsurface Soil Sample Results

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Location:	SB-116	SB-117	SB-118	SB-119	SB-120	
Sample Number:	SB-116-01	SB-117-01	SB-118-01	SB-119-01	SB-119-02	SB-120-01
Depth (ft bgs):	2.5 to 5.0	2.5 to 3.7	1.0 to 3.2	1.5 to 2.5	1.5 to 2.5	5.0 to 6.5
Parameters <sup>a</sup>	DUP					
Inorganics-(mg/kg)						
Aluminum	4640	11200	12200	10700	11300	8800
Arsenic	2.6	1.3 F	1.1 F	1.3 F	3.1	1.2 F
Barium	24	37.7	43.1	42.1	55	33.2
Beryllium	0.39	0.51	0.54	0.46	0.52	0.39
Calcium	276000	259000	236000	222000	193000	193000
Chromium	16.5	22.1	21.6	17.5	20.2	16.6
Cobalt	1.4	2.8	3.2	2.5	4.1	2.1
Copper	3.6	2.4	3.6	5.2	4.5	3
Iron	5310	7380	8890	8030	8800	6840
Lead	3.2	6.4	9.6	10.7	11.4	4.2
Magnesium	2110	2340	2640	2060	2290	2070
Manganese	117	124	196	150	250	156
Mercury	0.039 U	0.039 U	0.04 U	0.04 U	0.1	0.036 U
Molybdenum	0.24 U	0.24 U	0.26 U	0.24 U	7.2	0.22 U
Nickel	4.4	6.8	7.6	6	8.1	5.2
Potassium	1150	2020	2360	2600	2620	1640
Sodium	733	823	819	1020	843	856
Thallium	0.59 U	0.61 U	0.64 U	0.62 U	1.3 F	0.56 U
Vanadium	17.8	26.4	23.5	16.5	21.1	15.2
Zinc	105	21.3	27.3	27.8	23.3	17
Semivolatiles-(mg/kg)						
Bis(2-ethylhexyl) phthalate	0.18 U	0.18 U	0.19 U	0.18 U	0.27 F	0.2 F
Volatiles-(mg/kg)						
m-Xylene	0.002 U	0.0024 U	0.002 U	0.0022 U	0.002 U	0.0021 U
Methylene chloride	0.00095 U	0.0011 U	0.00094 U	0.001 U	0.00096 U	0.0027 F
p-Xylene	0.002 U	0.0024 U	0.002 U	0.0022 U	0.002 U	0.0021 U
Toluene	0.0012 U	0.0019 F	0.0012 U	0.0013 U	0.0012 U	0.0013 U
Trichlorofluoromethane	0.0018 U	0.0021 U	0.0023 F	0.0019 U	0.0018 U	0.0019 U
Pesticides						
	ND	ND	ND	ND	ND	ND
PCBs						
	ND	ND	ND	ND	ND	ND

F - The compound was positively identified, but the associated numerical value is below the PQL.

NA - not analyzed

ND - not detected

U - The compound was analyzed for, but not detected. The associated numerical value is at or below the method detection limit

<sup>a</sup>Parameters limited to those detected in at least one sample (see Appendix H).Note - Boxed inorganic concentrations exceed background UTL<sub>95, 95</sub>. Boxed organic values are detected results.

to be attributable to sampling- or laboratory-introduced contamination. Bis(2-ethylhexyl)phthalate is considered a common laboratory contaminant by EPA (EPA, 1989). It was likely introduced in the laboratory; however, no method blanks were available with which to compare the concentrations. Figure 3-1 does not suggest any pattern in the locations of the detected compounds.

A limited number of inorganic compounds were detected in all samples. Some of the compounds, such as calcium, magnesium, and potassium, are due to the limestone that was encountered during borehole drilling. Therefore, the concentrations are attributed to localized geological conditions and not site-related contamination. Other metals detected above the background levels include chromium, mercury, and molybdenum. Chromium was detected at less than 1.5 times in any one sample. Mercury and molybdenum both were detected in only one sample, the duplicate of SB-119-01.

Chromium, mercury, molybdenum, bis(2-ethylhexyl)phthalate, and trichlorofluoromethane were carried forward in the risk evaluation. The potential sources and migration pathway of these compounds are discussed in Section 4.0.

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#### 4.0 POTENTIAL CONTAMINANT SOURCE AND MIGRATION PATHWAYS

The SA and SC results and findings presented in Section 3.0 are interpreted in this section to identify potential sources of the detected constituents in subsurface soil and describe any potential for migration.

No visible signs of a leach field or contamination associated with a leach field were noted during drilling operations at any of the boreholes. The inorganic compounds that exceeded background concentrations and organics detected in samples collected from the RV Fam Camp area may be a result of above ground activities that were not associated with a leach field, such as application of pesticides or leaks from lawn maintenance machinery. Potential risks associated with these compounds are evaluated in Section 5.0.

As discussed in Section 3.3.5.1, groundwater was not encountered in the area. The silty soil layer above limestone varied from 5 feet to 20 feet bgs. The lack of groundwater and low permeability of the soils will limit the contaminant migration potential of the site.

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## 5.0 RISK EVALUATION

Although contaminants reported in Section 3.0 are not believed to be attributable to an RV Fam Camp source such as a leach field, potential risks were evaluated in order to ensure that human health and the environment are protected. The risk evaluation focuses on risks associated with subsurface soil in the RV Fam Camp area. The evaluation is divided into the Human Health Evaluation (Section 5.1) and the Ecological Evaluation (Section 5.2). Section 5.1 identifies COPCs and potential human receptor and exposure pathways and develops cleanup levels for protection of human health. Section 5.2 presents the biological resources present in the study area and evaluates potential ecological impact using toxicological benchmarks.

### 5.1 HUMAN HEALTH EVALUATION

In this section, human health risks are evaluated through development of CULs based on exposure scenarios, acceptable risk levels, risk based concentrations, and standards identified in the Risk Evaluation. These CULs were compared to site-specific exposure concentrations as a means to identify potential impacts to human health. Chemicals for which CULs were developed were identified through the background screening evaluation conducted in Section 3.0.

A human exposure conceptual site model in tabular format is presented in Table 5-1. It summarizes the contaminants, contaminated media, and migration and exposure pathways for the study area based on the findings of the site characterization and risk evaluation.

#### 5.1.1 Identification of Chemicals of Potential Concern

As described in Section 3.0, subsurface soil samples were collected at various depths for laboratory analysis according to PID readings. Surface soils were not collected because PID screening indicated a lack of contamination in the top 2 feet of soil in the RV Fam Camp area. Groundwater was not encountered in this area and therefore was not sampled. The potential for future migration is limited by geological barriers or lack of significant subsurface contamination. Therefore, the only environmental medium of concern for this risk evaluation is subsurface soil.

In Section 3.0, detected site concentrations in subsurface soil were compared with regional-specific background  $UTL_{95,95}$ . With a few exceptions, metals with at least one concentration exceeding these levels were carried forward in this risk evaluation. The few exceptions include calcium, potassium, and magnesium. As discussed in Section 3.2.2.4, detects of these compounds, which exceed the background  $UTL_{95,95}$ , are due to the limestone that was encountered during borehole drilling. Therefore, the concentrations are attributed to localized geological conditions and these compounds were not carried forward in the risk evaluation. These compounds are not expected to pose a risk to human health because they have low toxicity and/or are essential dietary minerals. All detected organic compounds were carried forward, except those attributable to laboratory or sampling contamination (methylene chloride and toluene).

Table 5-1. Conceptual Site Model Summary

Site Description	Contaminated Media and Detected Compounds	COPCs	Potential Migration Pathway	Potential Receptors	Exposure Pathway
Campground with alleged abandoned leach field	Subsurface soil: metals, VOCs, bis(2-ethylhexyl)phthalate	Chromium, mercury, molybdenum, TCFM, bis(2-ethylhexyl)-phthalate	Not expected	Current and future recreational visitors, future construction workers	Ingestion of and dermal contact with soil; inhalation of particulates/volatiles

COPC - chemical of potential concern; identified in Section 3.0 screening

TCFM - trichlorofluoromethane

VOCs - volatile organic compounds

Exceedances of the background  $UTL_{95,95}$  or detected organics are identified with boxes around the concentrations in Table 3-4. Exceedances other than those discussed in the preceding paragraph were limited to three inorganics, one semivolatile, and one VOC. No compounds believed to be released from an RV Fam Camp source such as a leach field exceeded background levels. Table 5-2 summarizes the COPCs and frequency of background exceedances for the RV Fam Camp area.

**Table 5-2. Chemicals of Potential Concern (COPCs) for the RV Fam Camp Area**

<b>COPC</b>	<b>Frequency of RRSN1 Exceedance<sup>a</sup></b>
Chromium	5 / 5
Mercury	1 / 5
Molybdenum	1 / 5
Bis(2-ethylhexyl)phthalate	2 / 5
Trichlorofluoromethane	1 / 5

RRSN1 – risk reduction standard number 1

<sup>a</sup>Represents the number of RRSN1 exceedances/total number of samples; also represents the number of detects/total number of samples for organic compounds.

### 5.1.2 Potential Human Receptors

Potential human receptors present in the vicinity of the RV Fam Camp area are identified in this section. Potential human receptors were identified based on current and future land use, beneficial groundwater use, and the migration potential evaluation (Section 4.0).

As discussed in Section 1.0, the RV Fam Camp area is located on NAS Fort Worth property, which consists of multiple land uses including industrial, commercial, recreational, and residential. A portion of this property will be transferred to the public as part of the NAS Fort Worth property disposal/reuse process. The RV Fam Camp area is located on the portion of property to be transferred. Currently, the RV Fam Camp area, located to the west of the Carswell Golf Club property, is an open area with no development. The property on which the golf club is located is expected to remain a golf club under private ownership after the property transfer. **The RV Fam Camp area is expected to be developed as an extension of the golf club (Long, 1996).**

Although the RV Fam Camp area is not currently being used for its intended purpose, it is accessible to the public. Therefore, current potential human receptors include NAS personnel and residents intermittently using the RV Fam Camp area for recreational purposes. The potential receptors are expected to remain the same after the property transfer, although the individuals using the golf club likely will include non-NAS residents.

Because some development is expected in the portion of the property being transferred (e.g., extension of the golf course), construction workers are also potential future receptors.

Potential beneficial use of the groundwater in the vicinity of the RV Fam Camp area is designated as Category I groundwater by TNRCC because of potential contaminant migration into local surface water (Benson, 1997). No receptors are currently using this groundwater as a water supply. There are no known planned uses of the groundwater as a future water supply for domestic or industrial purposes.

### 5.1.3 Human Exposure Pathway Evaluation

Exposure pathways describe the mechanisms through which chemicals released from the source(s) reach potential receptors. Exposure pathways are defined by the following elements, all of which must be present to have a complete exposure pathway:

- contaminated environmental media;
- receptor;
- point of contact with the contaminated medium; and
- feasible route of exposure at the contact point.

As discussed in the previous section, potential receptors in the study area include:

- **current and future recreational visitors to the RV Fam Camp area; and**
- **future construction workers in the transferred property.**

**COPCs in the RV Fam Camp area were identified in subsurface soil. No other environmental media have been identified as being contaminated, and future contaminant migration to other media is not expected based on the reasons discussed in Sections 4.0 and 5.1.1. Current visitors to the RV Fam Camp area do not directly contact subsurface contamination because the SC results indicate that the contamination is greater than 2 feet bgs. Therefore, no complete exposure pathways exist for current potential receptors.**

Similar to the conditions for the current receptors, future visitors to the golf club are not expected to directly contact the subsurface contamination. However, 15 feet of the soil column represents a reasonable depth above which soil could be excavated and brought to the ground surface during construction and excavation activities. Thus, future receptors in the vicinity of the development of the RV Fam Camp area may be exposed to potential contamination in subsurface soil brought to the ground surface. **Future visitors may be exposed to contaminants in subsurface soil brought to the surface via inhalation of volatiles/particulates; they are not expected to directly contact the soil because it will be in a construction zone. Because the future visitor may be a local resident, visitation to the RV Fam Camp area may be long-term. Therefore, the exposures associated with the future visitor are assumed to occur for 30 years, which is the standard default exposure duration for residents. Future construction workers may be exposed to contaminants in subsurface soil via ingestion of and dermal contact with soil and inhalation of volatiles/particulates. Due to the short-term nature of**

construction work, construction workers are assumed to have an exposure duration of 2 years.

Although groundwater use in these areas is unlikely to occur in the future and **contaminant migration is limited**, the soil to groundwater cross-media protection pathway was evaluated to be consistent with TNRCC Subchapter S standards. This approach is consistent with other risk assessments being conducted at the NAS Fort Worth (Benson, 1997).

As presented in Section 5.1, the human exposure CSM summarizing the exposure information for the RV Fam Camp area is shown in Table 5-1. In summary, the future exposure scenarios used to develop cleanup levels are as follows:

- **Recreational visitor to the RV Fam Camp area potentially exposed via inhalation of volatile COPCs and particulates in excavated subsurface soil.**
- **Construction worker potentially exposed via ingestion of, inhalation of, and dermal contact with COPCs in subsurface soil at the RV Fam Camp area.**
- **Residents potentially exposed via groundwater ingestion due to contaminants migrating from subsurface soil to groundwater.**

#### 5.1.4 Development of Cleanup Levels

CULs for soil were obtained from the most recent TNRCC interoffice memorandum guidance on implementing the existing Subchapter S Risk Reduction Rule (TNRCC, 1998). No other sources of cleanup levels for these media were necessary because the medium-specific concentrations (MSCs) provided in this guidance reflect newly promulgated standards (e.g., MCLs), current toxicity factors, current inhalation emission factor methodologies, and the dermal absorption exposure pathway (TNRCC, 1998). In addition, several compounds that did not have RRSN2 MSCs in the original Appendix II of Subchapter S (TNRCC, 1993) are listed with values in the memorandum (e.g., molybdenum). TNRCC standards are not specifically available for the exposure scenarios identified as appropriate for this site (construction worker and recreational visitor). Instead, MSCs for residential and industrial direct contact of soil were compiled as potential CULs. The residential MSCs are considered highly conservative for the site given the likely future use of the area, as discussed in Sections 5.1.2 and 5.1.3. Exposure frequencies and durations for the receptors identified for the site would be much lower than for residential populations, resulting in lower risk.

**TNRCC (1998) soil MSCs for both residential and industrial direct contact and soil to groundwater migration were evaluated as CULs in this risk evaluation.** The direct contact MSCs are risk-based and reflect three exposure routes: ingestion, inhalation of volatiles and particulates, and dermal contact. The soil to groundwater migration MSCs were derived by TNRCC (1998) by multiplying the respective risk-based target groundwater concentration by a dilution factor of 100.

The MSCs were derived using reasonable maximum exposure (RME) assumptions and algorithms. Residential RME assumptions reflect a combined early childhood (6 years)

and adult exposure for both carcinogens and noncarcinogens in soil and adult exposures only (30 years) for COPCs in groundwater. For the industrial scenario, adult exposure assumptions, consistent with appropriate work conditions, were used to generate the industrial direct soil contact soil MSCs. These MSCs reflect a standard default exposure frequency of 250 days/year for 25 years. Target risk levels corresponding to the MSCs are consistent with EPA guidelines (EPA, 1989) and TNRCC standards, which define the noncarcinogenic risk level as a hazard quotient (HQ) of 1; and the carcinogenic risk level as  $1 \times 10^{-6}$  for Class A and B carcinogens and  $1 \times 10^{-5}$  for Class C carcinogens.

The MSCs considered as potential CULs for both the residential and industrial scenarios are summarized in Table 5-3. The lowest concentrations for each medium are boxed. These values were used as the final CULs for comparing to site concentrations in Section 5.1.6. As shown in this table, the concentrations corresponding to the groundwater protection pathway are the lowest for all soil COPCs except for mercury. Given that the vertical migration of COPCs from soil to potable groundwater are significantly retarded by the Walnut Formation aquitard and no groundwater was encountered in the study area, using the default MSCs as CULs for the soil to groundwater pathway is a highly conservative approach for this site. Furthermore, as demonstrated in Section 4.2, site contamination is generally limited to the surficial layer of soil and vertical migration is not occurring. As a result, potential exposures and risks are likely to be limited to direct surface soil contact pathways for both current and future receptors and not the groundwater migration pathway.

**Table 5-3. Potential RRSN2 Cleanup Levels for COPCs at the RV Fam Camp Area**

COPC	Residential Direct Contact <sup>a</sup> (mg/kg)	Industrial Direct Contact <sup>b</sup> (mg/kg)	Groundwater Protection <sup>c</sup> (mg/kg)
Chromium	330	1,600	10 <sup>d</sup>
Mercury	0.11	0.15	0.2
Molybdenum	1,100	8,100	18
Bis(2-ethylhexyl)phthalate	19	65	0.6
Trichlorofluoromethane	82,000	610,000	1,100

Box value is the final RRSN2 cleanup level for the RV Fam Camp Area

COPC - Chemical of Potential Concern

<sup>a</sup>Source: TNRCC (1998). Assumes residential soil ingestion, inhalation, and dermal contact.

<sup>b</sup>Source: TNRCC (1998). Assumes industrial soil ingestion, inhalation, and dermal contact.

<sup>c</sup>Source: TNRCC (1998). For protection of groundwater from vertical migration of contaminant.

<sup>d</sup>Because the groundwater protection MSC is less than the background UTL<sub>95,95</sub> (16.3 mg/kg), the latter value was established as the RRSN2 CUL for the site

### 5.1.5 Cleanup Level Comparison

COPC concentrations are compared with the selected CULs in Table 5-4. Maximum site concentrations, rather than statistically derived exposure concentrations, were used for comparison because of the limited number of subsurface soil samples (i.e., five samples) collected from the RV Fam Camp area. This approach is consistent with TAC Chapter 335, Subchapter S (TNRCC, 1993).

The COPC concentrations are below CULs, except for chromium. The maximum detected concentration of chromium only slightly exceeds the CUL, which is the chemical-specific background UTL<sub>95,95</sub>. The maximum chromium concentration is less than 1.4 times the background UTL<sub>95,95</sub> and the average (19 mg/kg) only slightly exceeds. Therefore, the site concentrations of chromium are likely representative of natural variation in site-specific background levels. The average concentration of a larger data set for the RV Fam Camp area would likely yield a value that is within the background range established for Carswell AFB.

**Table 5-4. Comparison of RV Fam Camp Area Concentrations with RRSN2 Cleanup Levels**

COPC	Maximum Site Concentration <sup>a</sup> (mg/kg)	RRSN2 Cleanup Level <sup>b</sup> (mg/kg)	Exceedance of Cleanup Level?
Chromium	22.1	16.3	Yes
Mercury	0.1	0.11	No
Molybdenum	7.2	18	No
Bis(2-ethylhexyl)phthalate	0.2	0.6	No
Trichlorofluoromethane	0.0023	1,100	No

COPC - chemical of potential concern

<sup>a</sup>From Table 3-4.

<sup>b</sup>From Table 5-3.

### 5.2 ECOLOGICAL EVALUATION

Potential ecological risks were evaluated using a screening level assessment in which site concentrations were compared to established ecological benchmarks. This approach is consistent with methods outlined in the *Framework for Ecological Risk Assessment* (EPA, 1992) and the *Draft Guidance for Conducting Ecological Risk Assessment Under The Texas Risk Reduction Program* (McBee et al. 1996).

The sections below describe the biological resources in the vicinity of the study area, identify potential receptors and exposure pathways, and compare study area concentrations with screening benchmarks.

### 5.2.1 Biological Resources

Biological resources in the RV Fam Camp area are expected to be limited because of their industrial or disturbed nature. However, vegetated areas within or adjacent to the study area may provide habitat for wildlife.

#### 5.2.1.1 Vegetation

NAS Fort Worth and the study area are located in the Grand Prairie portion of the Black Prairies section of the Central Lowlands Physiographic Province. This province is characterized by broad terraces that slope to the east. The topography in the vicinity is relatively flat.

Vegetated areas in the study area are predominantly mowed grasses and weedy herbaceous species. Most of the native habitat and species have been replaced by introduced ornamental or invasive weedy species. Grasses in the area are typical of undeveloped industrial areas. According to ETC (1994), these grasses include little bluestem (*Schizachyrium scoparium*), Indian grass (*Sorghastrum avenaceum*), big bluestem (*Andropogon gerardi*), and buffalo grass (*Buchloe dactyloides*). Introduced trees in the area include catalpa (*Catalpa bignonioides*) and chinaberry (*Melia azedarach*).

#### 5.2.1.2 Wildlife

Wildlife in the vicinity of the study area includes a variety of birds, mammals, and reptiles. Wildlife typically found in the grassy areas includes common bird species such as grackle (*Quiscalus quiscula*), starling (*Sternus vulgaris*), western meadowlark (*Sturnella neglecta*), and mourning dove (*Zenaidura macroura*). Mammals that may use the general area are coyote (*Canis latrans*) and black-tailed hare (*Lepus californicus*). Other mammals that could be found in the study area include raccoon (*Procyon lotor*), striped skunk (*Mephitis mephitis*), nine-banded armadillo (*Dasypus novemcinctus*), red fox (*Vulpes fulva*), and gray fox (*Urocyon cinereargenteus*) (ETC, 1994).

The study area may also provide habitat for reptiles and amphibians. Reptiles may include snakes, including Western cottonmouth (*Agkistrodon piscivorus*), Western diamondback (*Crotalus atrox*), Western milk (*Lampropeltis triangulum gentillis*), and Western ribbon (*Thamnophis proximus proximus*).

#### 5.2.1.3 Threatened and Endangered Species

There are no known Federal or state threatened or endangered plant or wildlife species or sensitive habitats within or adjacent to the RV Fam Camp area. However, NAS Fort Worth is located in the Central North American Migratory Flyway, through which several threatened and endangered species migrate, including the Arctic peregrine falcon (*Falco peregrinus tundrius*), bald eagle (*Haliaeetus*), and whooping crane (*Grus americana*) (ETC, 1994). These species are attracted to Lake Worth, which is located approximately 1.5 miles north of the study area. These species are migratory and are not expected to reside in the vicinity of the study area.

The Silver Creek heron rookery is located along the northeast side of the lake, approximately 5 to 6 miles north of the study area. The rookery is protected as a sensitive wildlife area by the Texas Parks and Wildlife Department.



Two federally listed candidate reptiles may exist in Tarrant County. They are the Texas horned lizard (*Phrynosoma cornutum*) and the Texas garter snake (*Thamnophis sirtalis annectens*). The Texas horned lizard prefers grassy upland areas, while the Texas garter snake prefers seeps and wet grass areas. Either of these species could inhabit the grassy areas surrounding the RV Fam Camp. However, to date they have not been identified on NAS Fort Worth or in the project vicinity. Suitable habitat in the study area is fragmented and routinely maintained by mowing and herbicides. Therefore, it is not anticipated that these species exist within or adjacent to the study area.

#### 5.2.2 Potential Receptors and Exposure Pathways

Inorganics, VOCs, and one SVOC were detected within the root zone (2.2 to 5 feet bgs) of the RV Fam Camp area. Thus, ecological receptors could contact these chemicals. Ecological receptors could include deep-rooted trees and shrubs if their root systems contact the contaminants. The contaminants are within 5 feet of the ground surface; therefore, burrowing animals such as raccoon, striped skunk, and nine-banded armadillo could contact the contaminants. If the burrowing animals were to contact the contaminants, a predator such as a coyote or raptor foraging on these species could become an ecological receptor for chemicals that bioaccumulate (e.g., lindane). Based on these conditions, potential ecological receptors could be exposed to subsurface contaminants in the RV Fam Camp area via plant uptake, ingestion, inhalation, and dermal contact.

The mobility of an ecological receptor is typically considered when evaluating its potential for exposure (Will and Suter, 1995). The mobility of a specific receptor is directly correlated to the average foraging range of an individual within the species under consideration (Sample et al., 1996). Flightless invertebrates and vegetation are considered stationary due to the small area they occupy. Small invertebrates such as amphibians, reptiles, small arboreal, and burrowing animals are considered mobile receptors. These mobile receptors can have foraging ranges up to several acres. Transient receptors include larger invertebrates such as coyote, fox, and raccoon, and migratory avifauna or raptors. Foraging ranges for these transient species could cover several square miles, reducing the amount of time spent in the RV Fam Camp area and, therefore, the amount of exposure.

#### 5.2.3 Screening Benchmark Comparison

Maximum concentrations of COPCs for ecological receptors in the RV Fam Camp area were compared to soil screening benchmarks obtained from McBee et al. (1996) and Sample et al. (1996). This comparison is shown in Table 5-5. COPCs are the same as those identified for human health.

As shown in Table 5-5, the maximum concentrations of COPCs for which benchmarks were available are at or below levels of concern, except for chromium. The benchmark for chromium, however, is more than an order of magnitude below the background UTL<sub>95,95</sub> (16.3 mg/kg) developed by Jacobs (1997, 1998). In addition, the maximum chromium concentration is less than 1.4 times the background UTL<sub>95,95</sub> and the average (19 mg/kg) only slightly exceeds it. Therefore, the site concentrations of chromium are likely representative of natural variation in site-specific background levels. The average concentration of a larger data set for the RV Fam Camp area would likely yield a value that is within the background range established for Carswell AFB.

No ecological benchmarks for trichlorofluoromethane were available. However, this compound was detected in only one sample at a concentration (0.0023 mg/kg) slightly above the highest reported method detection limit (0.0021 mg/kg). This compound has a relatively low toxicity according to the human health MSC for residential direct soil contact (82,000 mg/kg). Its presence, if it is site-related, is not likely to be a threat to environmental receptors that are intermittently exposed to RV Fam Camp area soils.

**Table 5-5 Ecological Benchmark Screening for the RV Fam Camp Area**

<b>COPC</b>	<b>Maximum Detected Concentration<sup>a</sup> (mg/kg)</b>	<b>Ecological Screening Benchmarks<sup>b</sup> (mg/kg)</b>
Chromium	22.1	0.4/1 <sup>c</sup>
Mercury	0.1	0.1/0.3
Molybdenum	7.2	90/30
Bis(2-ethylhexyl)phthalate	0.2	10 <sup>d</sup>
Trichlorofluoromethane	0.0023	NA <sup>e</sup>

<sup>a</sup>From Table 3-4.

<sup>b</sup>Source: McBee et al. (1996) and Sample et al. (1996). The first value is for invertebrates; the second value is for plants.

<sup>c</sup>Value represents an avian reproductive study NOAEL (Sample et al. [1996]).

<sup>d</sup>NA - not available

<sup>e</sup>These values are more than an order of magnitude below the Jacobs (1997, 1998) background UTL.

### 5.3 RISK EVALUATION SUMMARY

CULs were developed for COPCs detected in the RV Fam Camp area. The COPCs include chromium, mercury, molybdenum, bis(2-ethylhexyl)phthalate, and trichlorofluoromethane. Although COPCs were identified for this area, these compounds are not indicative of a contaminant source at the RV Fam Camp such as a leach field (as discussed in Section 4.5).

Concentrations of all the COPCs are below human health CULs, which were based on groundwater protection of residential drinking water, residential direct contact with soil (mercury), and background (chromium). Similarly, concentrations of the detected compounds in the RV Fam Camp area either are at or below ecological screening benchmarks, measured background levels, or are not considered of concern to ecological receptors.

In addition, the RV Fam Camp area has limited habitat for wildlife because the vegetation is regularly maintained by mowing and/or spraying with herbicides. In addition, the area is isolated from other suitable habitat by several secondary roads and a four-lane highway. Therefore, the results of this risk evaluation demonstrate that the

concentrations of compounds present in subsurface soil at the RV Fam Camp area are not expected to adversely impact human health or the environment.

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## 6.0 CONCLUSIONS AND RECOMMENDATIONS

The investigation found no evidence indicating that a source of contamination such as a leach field was present at the RV Fam Camp area. However, limited low-level contamination was identified at concentrations below those that would impact human health or the environment based on evaluations using RRSN2 procedures (TAC Chapter 335, Subchapter S [TNRCC, 1993]).

Three site categories are identified in AFCEE guidance with respect to further action at a site. These categories are defined below.

- Category 1 - No further action because no significant impact to human health or the environment exists.
- Category 2 - Further study is required to categorize the site.
- Category 3 - Remedial action is required.

Based on the results of this investigation, it is recommended that the RV Fam Camp area be managed under Category 1.

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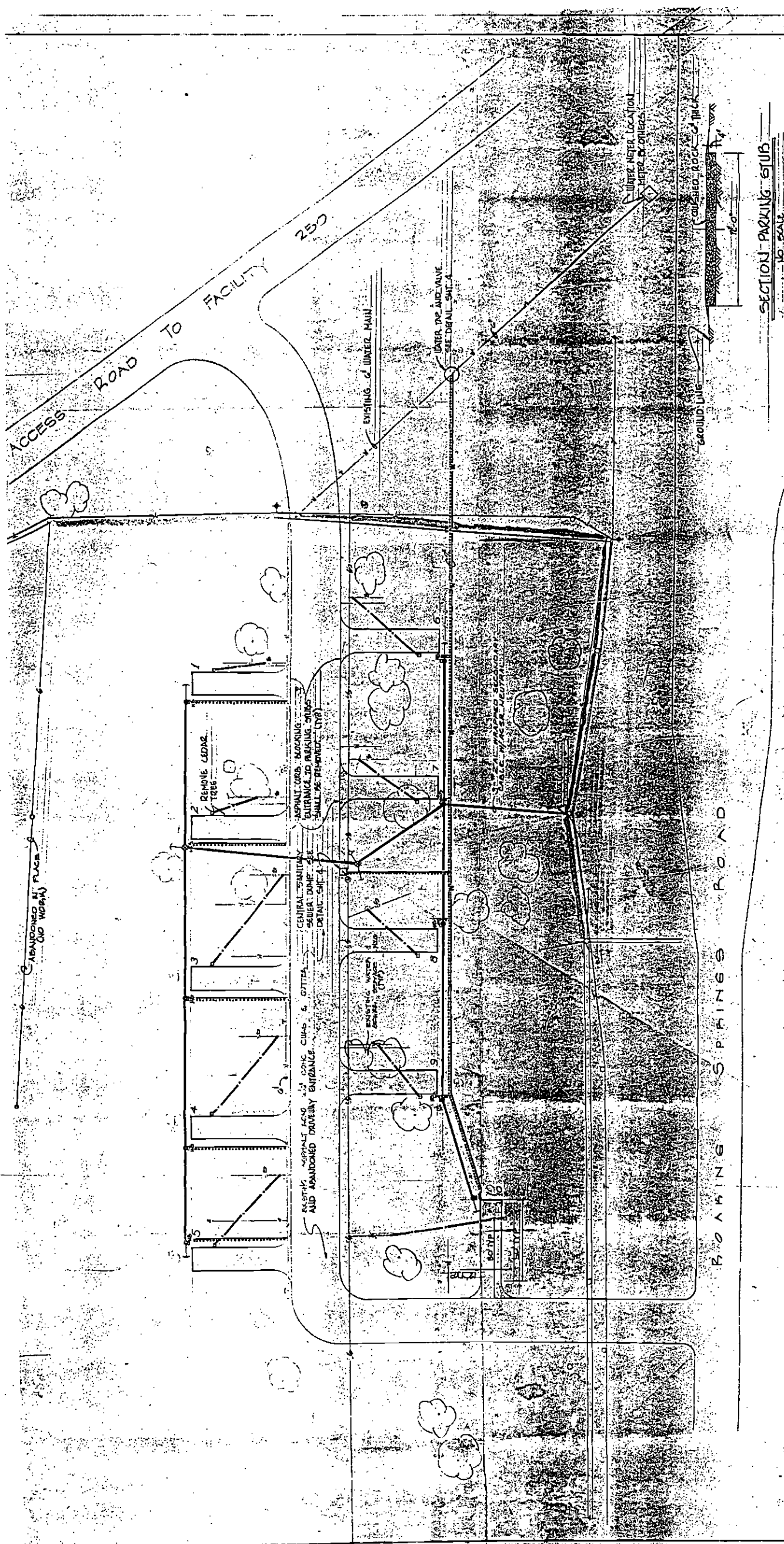
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A

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**APPENDIX A**

**RV FAM CAMP UTILITY DRAWING**



CONSTRUCT FAMILY - CAMP (NEW)

PLOT: PLAN

4-202

Plot:

**Notes:**

1. ALL TRUCKS WHICH WILL INTERFERE WITH PACKING OF TRAILERS SHALL BE TURNED TO A MINIMUM CLEARANCE OF 12' OVER PACKING STOPS.
2. CENTRAL SANITARY SEWER PUMP STATION SHALL BE CONNECTED DIRECTLY TO ADJACENT M.I. PACKING STOPS LOCATIONS SHALL BE GRADED AS REQUIRED TO PROVIDE LEVEL, PAD AND ADEQUATE DRAINAGE.
3. SEWER IN LOCATIONS SHOULD BE APPROXIMATE SEE CONTRACTING OFFICER OR HIS AUTHORIZED REP FOR EXACT LOCATION.

**LEEDS**

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SECTION - PARKING STUBS

No. 3412

**TAB**

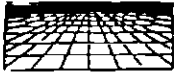
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**APPENDIX B**

**453 100**

**GEOPHYSICAL REPORT**



## ULS SERVICES COMPANY

SPECIALIZED SERVICES FOR ENVIRONMENTAL AND CONSTRUCTION ENGINEERING

ADMINISTRATIVE OFFICE ADDRESS  
San Diego Pocatello Honolulu Operations  
PO Box 724  
301 A Roosevelt  
Pocatello, ID. 83201  
(208) 234-1441 1-(800) 528-8206  
Fax (208) 234-1507

453 101

November 12, 1996

Mr. Bob Duffner  
The Environmental Company, Inc.  
24997 S.E. 155 Place S.W.  
Issaquah, WA. 98027  
PH: (206) 391 - 2785

Subject: Field Documentation - Letter Report  
Utility Location Survey-Proposed Borehole Locations  
And Leach Field Search and Location (FamCamp Area)  
NAS Ft. Worth (Carswell Field)

Reference: TEC Subcontract No. IDIQ9610  
Project No. 3103  
Subcontract Delivery Order (SDO) 001

Dear Mr. Duffner,

Representatives of ULS Services Corporation were present at the referenced site on the dates of October 21 thru 24, 1996 to perform underground utility location at twenty proposed borehole locations as well as search and location of a reported abandoned sewer leach field at NAS FT. Worth.

### METHODS

Analog and Digital Electromagnetic as well as Ground Penetrating Radar (EM) methods were used. Analog EM methods include: Electromagnetic Pipe and Cable Location (EMPCL) and Electromagnetic Induction Metal Detection (EMIMD). Conductive Utility Clearance Work was accomplished utilizing EMPCL methods which include passive, ground induction, and connection modes.

A high watt signal generator with multi-frequency receiver was used. In addition, EMIMD air to ground induction mode was employed to detect broad metal mass anomalies that may be reflective of potential USTs or vaults not reported or known to exist. EMIMD was also utilized to detect high conductive soil or metallic residual soil areas that may be indicative of former UST or septic tank pit areas. A bar suspended transmitter and receiver type unit was utilized. Observed EM line signals (utilities) and metal mass anomalies were painted on the ground surface and field drawings were prepared for TEC crew and for translation into CAD format. Drawings for the utility survey work along the fuel pipeline were not requested.

Digital EM methods include use of a Geonics EM-31 Terrain Conductivity Meter. A survey grid with transect spacing interval of 10 feet was laid out across the reported leach field area designated by TEC field staff. Digital data was collected at 10 foot intervals along each transect line and loaded onto Surfer for Windows Software for analysis as well as Autocad LT Software.

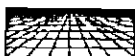
Ground Penetrating Radar (GPR) was also utilized to attempt to identify potential utilities constructed of non-conductive materials and to further characterize EM anomalies found in the reported leach field area.

## OBSERVATIONS

### Utility Survey

#### Front Gate Area:

Ground surface consists mostly grass. No obvious surface expressions or USTs are observed. No metal mass anomalies are observed. A total of five Survey Zones were investigated, three on the east side of the creek and two on the west side. A large diameter storm water pump station transfer pipe, appears to trend from west side southwest of vault in a northwest direction towards Base. An EM line signal anomaly (utility) was also observed trending in same direction in the same trench. Actual pipe location was not verified. Location of pipe was confirmed with Base facilities and staff. Ground Penetrating Radar (GPR) pilot tests were performed to determine feasibility. Due to the soil composition or other variables, reflective data was not obtained. Results proved to be non-feasible in this area. Multiple utilities were observed trending in same direction including: Fuel, Natural Gas, Electric and Telephone. One EM signal (utility) was observed on the west side of creek trending east and west through survey zones. EM signal is consistent with reported Fuel line location. One anomaly (utility) possibly telephone was also observed trending in same direction.



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## OBSERVATIONS

### Utility Survey

#### **Water Fall Area:**

Ground surface consists of grass, gravel and heavy brush in places. No obvious surface expressions of USTs are observed. No metal mass anomalies are observed. A total of five Survey Zones were investigated in this area. Two large diameter Fuel lines are exposed crossing a small creek bed that flows into river. Fuel lines are parallel and are trending approximately northeast to southwest through survey zones. One EM signal anomaly (utility) is observed trending east and west at the north end of the survey zones. Observation of the trend appears to originate from a storm drain manhole to another manhole.

#### **Flood Control Area:**

Ground surface consists of grass. No obvious surface expressions of USTs are observed. No metal mass anomalies are observed. A total of five Survey Zones were investigated along the West bank of the channel. One EM signal (utility) is observed trending East and West thru all five survey zones. EM signal observed is consistent with reported Fuel line location.

#### **Roaring Spring Road:**

A total of two Survey Zones were investigated in this area. Ground surface consists of grass. No obvious surface expressions of USTs are observed. No metal mass anomalies are observed. One EM signal anomaly (utility) is observed trending East and West from a concrete vault. Trend is consistent with reported Fuel line location.

Work was confined to these areas and no intrusive work should be done outside of the marked Survey Zones. Utilities that have been located and identified are marked accordingly in and immediately around the Survey Zones. Areas between ULS Survey Zones have been interpolated based upon trend direction of observed utilities. Detailed utility work has not been performed in these areas, outside of the ULS Survey Zone.



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**Leach Field Search****Leach Field Area:**

The reported leach field survey area designated by TEC field staff is at an abandoned RV Park referred to locally as FamCamp area. The survey area consists of approximately 35,000 square feet of generally flat low-cut grassy area that is separated by a tree-hedge. The area north of the hedge is a low-cut open grass area with some scattered large trees. The area south of the hedge, also of low-cut grass, lies between two graveled RV parking strip areas located perpendicular to a asphalt road that trends east-west through the RV Park. The northern side of the road (curb) is the southern boundary of the leach field survey zone. Ground surface within the southern half of the survey zone is relatively uneven and hummock and appears to have been disturbed.

A general utility survey was performed through the survey zone to ascertain existence of utilities and possible metallic piping associated with the reported leach and septic system. Results of the EMPCL survey indicates presence of utilities. Two EM signals (utilities) are observed trending east and west parallel with each other approximately five feet apart on the north edge of the asphalt road. One EM signal (utility) is observed on the east edge of Lot #3 trending north forty nine feet then east twenty seven feet to end of signal. Another utility was observed approximately fifty-five feet from the west side of survey zone trending north and south thru the entire zone(Plat 1).

Results of the Leach Field Septic Tank Search and Location work utilizing EMIMD methods indicate the presence of multiple low-grade high conductive anomalies within the area south of the tree hedge. Anomalies form a L- shaped pattern and fall within the hummocky, possibly disturbed ground surface area referenced above. Ground Penetrating Radar (GPR) was utilized to further characterize the EMIMD anomalies, however reflector data obtained was washed out and non-conclusive, probably due to poor soil conductivity conditions (GPR proved non-feasible). Results of the EM-31 survey confirmed the presence of one utility trending north-south through the survey zone, previously found during the EMPCL survey. Conductivity contour maps do not indicate any anomalous features other than the lineated anomaly (utility) referenced above (Plat-2). An overlay of Plats 1 and 2 are shown on Plat 3.

**Conclusions**

Of the two utilities trending parallel to one another and east to west along north side of the curb, the northern most utility appears to be a natural gas service line as this line traced back to Roaring Springs road where the Gas Company had marked the line. A lateral service pipe, which appears to be in connection with the main pipe, reference above, trends northward into the survey zone, where it is observed to form a 90 degree elbow turn to the south, at which point the lateral terminates, approximately 50 feet east of the disturbed ground and EMIMD anomalies. This termination point may have been a natural gas main location for a former building associated with the reported leach - septic system.

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The EMIMD anomalies and disturbed ground may be associated with the reported former septic tank system. Based on the low-grade strength of these anomalies it does not appear that the septic tank exists, however, the anomalies may be resultant from remnant pieces or residue from demolition and removal. Further historical information may be needed to ascertain the location of this system.

### Utility Location

Five proposed borehole locations were designated by TEC field staff based on the results of the Leach Field location work and EMPCL methods were utilized to determine the presence of conductive utilities within these zones. None were observed (Plat 1).

### **LIMITATIONS**

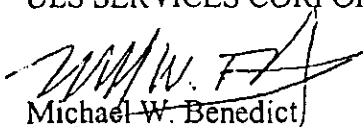
This work was performed to industry standards, however, not all utilities, facilities, and debris, conductive or non-conductive may be detected, observed, and shown due to known or unknown variables. Multiple methods and search sweeps as well as visual methods are employed. Results are very dependent upon surface and subsurface soil conditions and data collected as well as observations may vary. It is not always feasible to obtain useful data. Interpretations made here are based on past experience and typical response to these methods to similar scenarios associated with this work. Other interpretations are always possible and may not be stated.

It is advisable to exhaust all other sources of information before intrusive work begins. This may include and is not limited to additional utility drawing review, historical document- drawing review, facilities-owner review, and public utility notification.

If you have any questions about this report please contact me at (800)528-8206.

Sincerely

ULS SERVICES CORPORATION



Michael W. Benedict

President and Director

Western and Pacific Regions



ULS SERVICES COMPANY

SPECIALIZED SERVICES FOR ENVIRONMENTAL AND CONSTRUCTION ENGINEERING

**TAB**

*c*

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APPENDIX C

SAMPLE IDENTIFICATION CROSS REFERENCE

SAMPLE IDENTIFICATION CROSS REFERENCE											
PIPELINE AREA DRILLING PROJECT											
NAS FT WORTH JRB (FORMERLY CARSWELL AFB)											
LOCATION ID	SAMPLE DATE	SAMPLE TIME	SAMPLE TYPE	SAMPLE MATRIX	SAMPLE DEPTHS (FT)		FIELD SAMPLE NO	FIELD LOT CONTROL NO	LABORATORY SAMPLE NO	ANALYTICAL METHOD	LAB LOT CONTROL NO
SB-108	24-Oct-1998	1000	N1	SO	8.50	11.50	SB-108-01	101A	A8477102	SW8021	A9B00283
SB-108	24-Oct-1998	1000	N1	SO	8.50	11.50	SB-108-01	101A	A8477102	SW8270	A8B09035
SB-109	24-Oct-1998	1355	N1	SO	10.00	13.00	SB-109-01	101A	A8477106	SW8021	A9B00283
SB-109	24-Oct-1998	1355	N1	SO	10.00	13.00	SB-109-01	101A	A8477106	SW8270	A8B09035
SB-109	24-Oct-1998	1355	FD1	SO	10.00	13.00	SB-109-03	101A	A8477107	SW8021	A9B00283
SB-109	24-Oct-1998	1355	FD1	SO	10.00	13.00	SB-109-03	101A	A8477107	SW8270	A8B09035
SB-109	24-Oct-1998	1505	N1	SO	16.00	17.20	SB-109-02	101A	A8477108	SW8021	A9B00283
SB-109	24-Oct-1998	1505	N1	SO	16.00	17.20	SB-109-02	101A	A8477108	SW8270	A8B09035
SB-110	24-Oct-1998	1115	N1	SO	7.00	10.00	SB-110-01	101A	A8477104	SW8021	A9B00283
SB-110	24-Oct-1998	1115	N1	SO	7.00	10.00	SB-110-01	101A	A8477104	SW8270	A8B09035
SB-110	24-Oct-1998	1115	MS1	SO	7.00	10.00	SB-110-01	101A	A8477104MS	SW8270	A8B09035
SB-110	24-Oct-1998	1115	SD1	SO	7.00	10.00	SB-110-01	101A	A8477104SD	SW8270	A8B09035
SB-110	24-Oct-1998	1210	N1	SO	15.00	17.50	SB-110-02	101A	A8477105	SW8021	A9B00283
SB-110	24-Oct-1998	1210	N1	SO	15.00	17.50	SB-110-02	101A	A8477105	SW8270	A8B09035
FIELDQC	24-Oct-1998	1040	AB1	WQ	0.00	0.00	AB-100	100A	A8477103	SW8021	A9B00285
FIELDQC	24-Oct-1998	1040	AB1	WQ	0.00	0.00	AB-100	100A	A8477103	SW8260	A9B00536
FIELDQC	24-Oct-1998	935	TB1	WQ	0.00	0.00	TB-101	001A	A8477101	SW8021	A9B00285

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D

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**APPENDIX D**

**SURVEYING DATA**

**Coordinates and Elevations**

**Site Drawing**



403 141

## Coordinates and Elevations

Soil Borehole Coordinates and Elevations

453 112

Location	Northing	Easting	Elevation (ft)
SB-16A	6961506.09	2299191.68	601.61
SB-17	6961587.62	2299268.95	600.09
SB-18	6961562.30	2299299.32	598.89
SB-19	6961615.30	2299236.88	601.09
SB-20	6961635.23	2298918.58	599.67

**Site Drawing**

453 113

[illegible][illegible]

JOB #	9606-30	AUGUST 22, 1996
		REVISED NOVEMBER 5, 1996

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**APPENDIX E**

**BOREHOLE LOGS**

# GEOLOGIC BOREHOLE LOG

Borehole (Location) ID: SB16

Page 1 of 1[illegible]

# GEOLOGIC BOREHOLE LOG

Borehole (Location) ID: SB17

Page 1 of 1

AFID		CRSWL		SiteID		Location Type		Borehole (BH)			
Location Description		Family Campground, north of hedge, middle hole									
Establishing Company		The Environmental Co		Geologist		K. Troensegaard		Drilling Company		Rone Engineers, Inc.	
Drilling Foreman		Tim Branco		Ground Surface Elevation		600.09 ft		Datum		Mean Sea Level	
Sampling Device		Split Spoon (5 ft)		Borehole Diameter (inches)		7		Total Depth (Feet)		5.0	
Date/Time Drilling Started		10/25/96		10:25		Date/Time Total Depth Reached		10/25/96		10:40	
Depth (feet)	Sampling				USCS	ASTM CODE	Lithologic Codes	Lithology Description SOIL TYPE, modifiers/grain size, sorting, color, cement/ lithification, moisture content, porosity, permeability/fracturing	Strat-order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples	
	Recov (feet)	Sample Depth	Blow Counts	PD							
2	4.4	0- 2.5				OL	STCL	0-1.8' Topsoil: organic silt and clay, soft, slightly moist, slightly plastic, 7.5 YR 3/2		Cloudy, mild	
4		2.5- 5									3.6
6								Refusal at 5' against limestone		No water in boring	
8											
10											
12											
14											
16											
18											
20											



## GEOLOGIC BOREHOLE LOG

453 119

Borehole (Location) ID: SB18

Page 1 of 1

Alt		CRSWL		Site ID		Location Type		Borehole (BH)		
Location Description Family Campground, north of hedge line, easternmost hole										
Establishing Company The Environmental Co				Geologist K. Troensegaard		Drilling Company Rone Engineers, Inc.				
Drilling Foreman Tim Branco				Ground Surface Elevation 598.89 ft		Datum Mean Sea Level				
Sampling Device Split Spoon (5 ft)				Borehole Diameter (inches) 7		Total Depth (Feet) 6.0				
Date/Time Drilling Started 10/25/96 09:50					Date/Time Total Depth Reached 10/25/96 10:15					
Depth (feet)	Sampling				USCS	ASTM CODE	Lithologic Codes	Lithology Description SOIL TYPE, modifiers/grain size, sorting, color, cement/ lithification, moisture content, porosity, permeability/fracturing	Strat- order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples
	Recov (feet)	Sample Depth	Blow Counts	PD						
2	3.1	0- 2.5		1		OL	STCL	0-2' <u>Topsoil</u> : Dark brown mixed organic silt and clay, soft, moist, slightly plastic		Cloudy, mild  FC-SB18-01 2.5-5': VOA, SVOA, TPH-D, TPH-G, inorganics, pesticides/PCB's 10:00
4		2.5- 5		2		ML	SILT	2-6' <u>Silt and limestone rubble</u> : Chalk silt and cobbles of limestone, firm, dry, friable		
6		5- 6		3.4						
8	1.0							Refusal at 6 feet against limestone		FC-SB18-02 5-6': VOA, SVOA, TPH-D, TPH-G, inorganics, pesticides/PCB's,  No water in boring
10										
12										
14										
16										
18										
20										

# GEOLOGIC BOREHOLE LOG

Borehole (Location) ID: SB19

Page 1 of 1[illegible]

453 121

Page 1 of 2

A' CRSWL		SiteID		Location Type		Borehole (BH)				
Location Description Family Campground, west of campground, behind dumpster enclosure										
Establishing Company The Environmental Co		Geologist K. Troensegaard		Drilling Company Rone Engineers, Inc.						
Drilling Foreman Tim Branco		Ground Surface Elevation 599.67 ft		Datum Mean Sea Level						
Sampling Device Split Spoon (5 ft)		Borehole Diameter (inches) 7		Total Depth (Feet) 21.0						
Date/Time Drilling Started 10/25/96 11:30				Date/Time Total Depth Reached 10/25/96 14:40						
Depth (feet)	Sampling				USCS	ASTM CODE	Lithologic Codes	Lithology Description SOIL TYPE, modifiers/grain size, sorting, color, cement/lithification, moisture content, porosity, permeability/fracturing	Strat. order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples
	Recov (feet)	Sample Depth	Blow Counts	PD						
2	3.6	0-2.5	9			OL	STCL	0-0.5' Topsoil: organic silt & clay, 7YR 2/3		Partly cloudy, warm, breezy, 70's
4		2.5-5						0		
6	1.4	5-10	22.4					2.8-21' Silt: yellow-brown, firm, dry, friable, occasional sand grains, trace CaCO3 precipitates, fairly abundant limestone fragments and cobbles, 7.5 YR 6/6		11:45
8								10-12.5		4.4
10	2.8	12.5-15	7.7						12:10	
12		15-17.5	5							
14	3.2	17.5-20	6.3							
16		18	20							

## 453 122

Page 2 of 2

AFID		CRSWL						Site ID		Location Type		Borehole (BH)					
Location Description		Family Campground, west of campground, behind dumpster enclosure															
Establishing Company		The Environmental Co				Geologist		K. Troensegaard		Drilling Company		Rone Engineers, Inc.					
Drilling Foreman		Tim Branco				Ground Surface Elevation		599.67 ft		Datum		Mean Sea Level					
Sampling Device		Split Spoon (5 ft)				Borehole Diameter (inches)		7		Total Depth (Feet)		21.0					
Date/Time Drilling Started								10/25/96		11:30		Date/Time Total Depth Reached		10/25/96		14:40	
Depth (feet)	Sampling				USCS	ASTM CODE	Lithologic Codes	Lithology Description  SOIL TYPE, modifiers/grain size, sorting, color, cement/ lithification, moisture content, porosity, permeability/fracturing	Strat. order	Remarks: Drilling Problems, Equipment, Water levels, Weather, Time, Samples							
	% Recov	Sample Depth	Blow Counts	PID													
	1.0	No Sample		6.9		ML	SILT	20-21' As above		14:40							
22								Refusal at 21.0' against limestone		No water in boring							
24																	
26																	
28																	
30																	
32																	
34																	
36																	
38																	
40																	

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**APPENDIX F**

**FIELD DATA FORMS**

**Waste Inventory Tracking Forms**

**Field Sampling Reports**

**Health and Safety Monitoring Sheets**

**Instrument Calibration Logs**

**Equipment Decontamination Log Sheet**

Waste Inventory Tracking Forms

## WASTE INVENTORY TRACKING FORM

LOCATION: NAS Fort Worth JRB Campwell Field, TXPROJECT NAME: RU Fam Camp AREAACTIVITIES: Soil Borings 10/22/96 - 10/26/96

Date Waste Generated	Activity Generating Waste (borehole # / well #)	Description of Waste	Field Evidence of Contamination	Estimated Volume gal	HL 55 2A1 Type of Container (storage ID#) D.R.U.M.S	Location of Container	Waste Characterization	Comments
10/22/96	SB01	Soil	NONE	20	FC-D-1	On site		SB01 75%
	SB02							SB02 25%
10/22/96	SB01	"	odor	50	FC-D-2	"		SB01 25%
	SB02							SB02 25%
10/23/96	SB03	"	odor	50	FC-D-3	"		SB03 100%
10/23/96	SB04	"	odor	50	FC-D-4	"		SB04 20%
	SB05							SB05 50%
10/23/96	SB06	"	NONE	50	FC-D-5	"		SB06 100%
10/24/96	SB07	"	NONE	30	FC-D-6	"		SB07 40%
	SB08							SB08 60%
10/24/96	SB09	"	NONE	50	FC-D-7	"		SB09 50%
	SB10							SB10 50%
10/25/96	SB16A-SB20	"	NONE	40	FC-D-8 55641	"		SB16-19 50%
								SB20 50%
10/26/96	SB-11	"	PET Odor	55	FC-D-9	"		SB 11 - 75%
	SB-12							SB 12 - 25%
10/26/96	SB12	"	Odor	20	FC-D-10	"		SB12 100%
10/25/96	SB-01-SB10	Water	NONE	30	FC-D-11	"		SB1 thru SB10
10/26/96	DCCN SB11 & 12	Water	NONE	10	FC-D-12	"		SB 11 & SB 12

Note: Describe whether soil or water samples have been collected for waste characterization, include date, if known.

KW Troonsgaard Site Geologist

Signature: KW Troonsgaard 10/24/96SOILS Collected AS 3 COMPOSITES 10/28/96  
ONE WATER COMPOSITE Collected 10/28/96



## Field Sampling Reports

453 127

LOCATION: <u>SB-116</u>	PROJECT: <u>3103</u>	
SITE: <u>34 (RV Fam Camp)</u>		

SAMPLE INFORMATION						
MATRIX: <u>SO</u>	SAMPLE ID: <u>SB-116-01</u>					
SAMPLING METHOD: <u>SS</u>	DUP./REP. OF: <u>      </u>					
BEGINNING DEPTH: <u>2.5'</u>	MATRIX SPIKE/MATRIX SPIKE DUPLICATE					
END DEPTH: <u>5.0'</u>	YES: <u>   </u> NO: <u>   </u>					
GRAB: <u>  X  </u> COMPOSITE: <u>      </u>	DATE: <u>10/23/98</u> TIME: <u>1255</u>					

CONTAINER			PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
SIZE	TYPE	#				
4 oz	Glass	①	Ice	BW5035	BW8280	Volatile Organics
8 oz	Glass	1	Ice	SW3540	SW8270	Semivolatile Organics
8 oz	Glass	② LLM	Ice	SW3540	SW8081	Pesticides
8 oz	Glass	③ LLM	Ice	SW3540	SW8082	PCBs
8 oz	Glass	④ LLM	Ice	SW3050	SW6010/ SW7471	Inorganics/Mercury

NOTABLE OBSERVATIONS		
WATER QUALITY	SAMPLE CHARACTERISTICS	MISCELLANEOUS
pH	COLOR: <u>      </u>	
Temp	ODOR: <u>      </u>	
EC	OTHER: <u>      </u>	

GENERAL INFORMATION	
WEATHER: SUN/CLEAR <input checked="" type="checkbox"/> CLOUDY/RAIN <input type="checkbox"/> WIND DIRECTION <u>      </u> TEMPERATURE <u>60's</u>	
SHIPMENT VIA: FED-X <input checked="" type="checkbox"/> HAND DELIVER <input type="checkbox"/> COURIER <input type="checkbox"/> OTHER <input type="checkbox"/>	
SHIPPED TO: <u>RECRA Environmental, Inc.</u>	
COMMENTS: <u>      </u>	
SAMPLER: <u>L. Myers</u>	OBSERVER: <u>      </u>

453 129

## FIELD SAMPLING REPORT

LOCATION: <u>SB-116</u>			PROJECT: <u>3103</u>		
SITE: <u>34 (RV Fam Camp)</u>					
SAMPLE INFORMATION					
MATRIX: <u>SO</u>			SAMPLE ID: <u>SB-116-02</u>		
SAMPLING METHOD: <u>SS</u>			DUP/REP. OF: <u>      </u>		
BEGINNING DEPTH: <u>5.0</u>			MATRIX SPIKE/MATRIX SPIKE DUPLICATE		
END DEPTH: <u>5.5</u>			YES: <u>      </u> NO: <u>✓</u>		
GRAB: <u>X</u> COMPOSITE: <u>      </u>			DATE: <u>10/23/98</u> TIME: <u>No sample</u>		
CONTAINER			PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD
SIZE	TYPE	#			ANALYSIS
4 oz	Glass	1	Ice	SW5035	SW8260 Volatile Organics
8 oz	Glass	1	Ice	SW3540	SW8270 Semivolatile Organics
8 oz	Glass	1	Ice	SW3540	SW8081 Pesticides
8 oz	Glass	1	Ice	SW3540	SW8082 PCBs
4 oz	Glass	1	Ice	SW3050	SW6010/ Inorganics/Mercury
				SW7471	
NOTABLE OBSERVATIONS					
WATER QUALITY		SAMPLE CHARACTERISTICS			MISCELLANEOUS
pH		COLOR:			
Temp		ODOR:			
EC		OTHER:			
GENERAL INFORMATION					
WEATHER: SUN/CLEAR <u>✓</u> CLOUDY/RAIN <u>      </u> WIND DIRECTION <u>      </u> TEMPERATURE <u>60's</u>					
SHIPMENT VIA: FED-X <u>X</u> HAND DELIVER <u>      </u> COURIER <u>      </u> OTHER <u>      </u>					
SHIPPED TO: <u>RECRA Environmental, Inc.</u>					
COMMENTS: <u>* Not enough recovery -- no sample</u>					
SAMPLER: <u>L. Myers</u>			OBSERVER: <u>collected</u>		

453 130

## FIELD SAMPLING REPORT

LOCATION: <u>SB-117</u>			PROJECT: <u>3103</u>		
SITE: <u>34 (RV Fam Camp)</u>					
SAMPLE INFORMATION					
MATRIX: <u>SO</u>			SAMPLE ID: <u>SB-117-01</u>		
SAMPLING METHOD: <u>SS</u>			DUP/REP. OF: _____		
BEGINNING DEPTH: <u>2.5</u>			MATRIX SPIKE/MATRIX SPIKE DUPLICATE		
END DEPTH: <u>3.7</u>			YES: _____ NO: <input checked="" type="checkbox"/>		
GRAB: <input checked="" type="checkbox"/> COMPOSITE: _____			DATE: <u>10/23/98</u> TIME: <u>1425</u>		
CONTAINER			PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD
SIZE	TYPE	#			ANALYSIS
4 oz	Glass	1	Ice	SW6036	SW8260 Volatile Organics
8 oz	Glass	1	Ice	SW3540	SW8270 Semivolatile Organics
8 oz	Glass	1	Ice	SW3540	SW8081 Pesticides
8 oz	Glass	1	Ice	SW3540	SW8082 PCBs
4 oz	Glass	1	Ice	SW3050	SW8010/ Inorganics/Mercury
				SW7471	
NOTABLE OBSERVATIONS					
WATER QUALITY		SAMPLE CHARACTERISTICS			MISCELLANEOUS
pH		COLOR:			
Temp		ODOR:			
EC		OTHER:			
GENERAL INFORMATION					
WEATHER: SUN/CLEAR <input checked="" type="checkbox"/> CLOUDY/RAIN _____ WIND DIRECTION _____ TEMPERATURE <u>60's</u>					
SHIPMENT VIA: FED-X <input checked="" type="checkbox"/> HAND DELIVER _____ COURIER _____ OTHER _____					
SHIPPED TO: <u>RECRA Environmental, Inc.</u>					
COMMENTS: _____					
SAMPLER: <u>L. Myers</u>			OBSERVER: _____		

# FIELD SAMPLING REPORT

LOCATION: <u>SB-118</u>	PROJECT: <u>3103</u>	
SITE: <u>34 (RV Fam Camp)</u>		

SAMPLE INFORMATION						
MATRIX:	<u>SO</u>	SAMPLE ID:	<u>SB-11801</u>			
SAMPLING METHOD:	<u>SS</u>	DUP/REP. OF:	<u>      </u>			
BEGINNING DEPTH:	<u>1.5</u> <u>2.5</u> <u>1.0</u>	MATRIX SPIKE/MATRIX SPIKE DUPLICATE				
END DEPTH:	<u>3.2</u>	YES:	<u>      </u>	NO:	<u>  ✓  </u>	
GRAB:	<u>X</u>	COMPOSITE:	<u>      </u>	DATE:	<u>10/23/98</u>	TIME:
		<u>1445</u>				

CONTAINER			PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
SIZE	TYPE	#				
4 oz	Glass	1	Ice	SW5036	SW8260	Volatile Organics
8 oz	Glass	1	Ice	SW3540	SW8270	Semivolatile Organics
8 oz	Glass	1	Ice	SW3540	SW8081	Pesticides
8 oz	Glass	1	Ice	SW3540	SW8082	PCBs
8 oz	Glass	1	Ice	SW3050	SW6010/ SW7471	Inorganics/Mercury

NOTABLE OBSERVATIONS		
WATER QUALITY	SAMPLE CHARACTERISTICS	MISCELLANEOUS
pH <u>X</u>	COLOR: <u>      </u>	
Temp <u>X</u>	ODOR: <u>      </u>	
EC <u>X</u>	OTHER: <u>      </u>	

GENERAL INFORMATION	
WEATHER: <u>SUN/CLEAR</u> <u>✓</u> CLOUDY/RAIN <u>      </u> WIND DIRECTION <u>      </u> TEMPERATURE <u>70's</u>	
SHIPMENT VIA: <u>FED-X</u> <u>X</u> HAND DELIVER <u>      </u> COURIER <u>      </u> OTHER <u>      </u>	
SHIPPED TO: <u>RECRA Environmental, Inc.</u>	
COMMENTS: <u>*Hit total depth at 3.2 ft bgs - no second sample</u>	
SAMPLER: <u>L. Myers</u>	OBSERVER: <u>      </u>

453 100

## FIELD SAMPLING REPORT

LOCATION: <u>SB-118</u>			PROJECT: <u>3103</u>		
SITE: <u>34 (RV Fam Camp)</u>					
SAMPLE INFORMATION					
MATRIX: <u>SO</u>			SAMPLE ID: <u>SB-118-02</u>		
SAMPLING METHOD: <u>ES</u>			DUP/REP. OF: <u>      </u>		
BEGINNING DEPTH: <u>      </u>			MATRIX SPIKE/MATRIX SPIKE DUPLICATE		
END DEPTH: <u>      </u>			YES: <u>      </u> NO: <u>✓</u>		
GRAB: <u>X</u> COMPOSITE: <u>      </u>			DATE: <u>10/23/98</u> TIME: <u>NO sample - see below</u>		
CONTAINER			PRESERVATIVE/	EXTRACTION	ANALYTICAL
SIZE	TYPE	#	PREPARATION	METHOD	METHOD
4 oz	Glass	1	Ice	SW5035	SW8260
8 oz	Glass	1	Ice	SW3540	SW8270
8 oz	Glass	1	Ice	SW3540	SW8081
8 oz	Glass	1	Ice	SW3540	SW8082
8 oz	Glass	1	Ice	SW3050	SW6010/
				SW7471	
NOTABLE OBSERVATIONS					
WATER QUALITY		SAMPLE CHARACTERISTICS			MISCELLANEOUS
pH		COLOR:			
Temp		ODOR:			
EC		OTHER:			
GENERAL INFORMATION					
WEATHER: SUN/CLEAR <u>✓</u> CLOUDY/RAIN <u>      </u> WIND DIRECTION <u>      </u> TEMPERATURE <u>70's</u>					
SHIPMENT VIA: FED-X <u>X</u> HAND DELIVER <u>      </u> COURIER <u>      </u> OTHER <u>      </u>					
SHIPPED TO: <u>RECRA Environmental, Inc.</u>					
COMMENTS: <u>NO sample -&gt; hit total depth at 3.2 ft bgs.</u>					
SAMPLER: <u>d. Myers</u> OBSERVER: <u>      </u>					

453 133

## FIELD SAMPLING REPORT

LOCATION: <u>SB-119-01 4M</u>			PROJECT: <u>3103</u>			
SITE: <u>34 (RV Fam Camp)</u>						
SAMPLE INFORMATION						
MATRIX: <u>SO</u>			SAMPLE ID: <u>SB-119-01</u>			
SAMPLING METHOD: <u>SS</u>			DUP/REP. OF: <u>      </u>			
BEGINNING DEPTH: <u>1.5</u>			MATRIX SPIKE/MATRIX SPIKE DUPLICATE			
END DEPTH: <u>2.5</u>			YES: <input checked="" type="checkbox"/> NO: <input checked="" type="checkbox"/> <u>for</u>			
GRAB: <input checked="" type="checkbox"/> COMPOSITE: <input type="checkbox"/>			DATE: <u>10/23/98</u> TIME: <u>1540</u>			
CONTAINER		PRESERVATIVE/	EXTRACTION	ANALYTICAL	ANALYSIS	
SIZE	TYPE	#	PREPARATION	METHOD		
4 oz	Glass	1	Ice	SW5036	SW8260	Volatile Organics
8 oz	Glass	1	Ice	SW3540	SW8270	Semivolatile Organics
8 oz	Glass	4	Ice	SW3540	SW8081	Pesticides
8 oz	Glass	3	Ice	SW3540	SW8082	PCBs
4 oz	Glass	3	Ice	SW3030	SW6010/	Inorganics/Mercury
					SW7471	
NOTABLE OBSERVATIONS						
WATER QUALITY		SAMPLE CHARACTERISTICS			MISCELLANEOUS	
pH		COLOR:				
Temp		ODOR:				
EC		OTHER:				
GENERAL INFORMATION						
WEATHER: SUN/CLEAR <input checked="" type="checkbox"/> CLOUDY/RAIN <input type="checkbox"/> WIND DIRECTION <input type="checkbox"/> TEMPERATURE <u>70's</u>						
SHIPMENT VIA: FED-X <input checked="" type="checkbox"/> HAND DELIVER <input type="checkbox"/> COURIER <input type="checkbox"/> OTHER <input type="checkbox"/>						
SHIPPED TO: <u>RECRA Environmental, Inc.</u>						
COMMENTS: <u>      </u>						
SAMPLER: <u>J. Myers</u>			OBSERVER: <u>      </u>			

Pesticides,  
PCBs,  
& inorganic  
only

4034

4

453 134

## FIELD SAMPLING REPORT

LOCATION: <u>SB-119</u>			PROJECT: <u>3103</u>			
SITE: <u>34 (RV Fam Camp)</u>						
SAMPLE INFORMATION						
MATRIX: <u>SO</u>			SAMPLE ID: <u>SB-119-02</u>			
SAMPLING METHOD: <u>SS</u>			DUP/REP. OF: <u>SB-119-01</u>			
BEGINNING DEPTH: <u>1.5</u>			MATRIX SPIKE/MATRIX SPIKE DUPLICATE			
END DEPTH: <u>2.5</u>			YES: <u>    </u> NO: <u>✓</u>			
GRAB: <u>X</u> COMPOSITE: <u>    </u>			DATE: <u>10/23/98</u> TIME: <u>1540</u>			
CONTAINER			PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
SIZE	TYPE	#				
4 oz	Glass	1	Ice	SW5035	SW8260	Volatile Organics
8 oz	Glass	1	Ice	SW3540	SW8270	Semivolatile Organics
4 8 oz	Glass	2 1	Ice	SW3540	SW8081	Pesticides
8 oz	Glass	1	Ice	SW3540	SW8082	PCBs
4 8 oz	Glass	1	Ice	SW3050	SW6010/ SW7471	Inorganics/Mercury
NOTABLE OBSERVATIONS						
WATER QUALITY		SAMPLE CHARACTERISTICS			MISCELLANEOUS	
pH <u>X</u>		COLOR: <u>    </u>				
Temp <u>X</u>		ODOR: <u>    </u>				
EC <u>X</u>		OTHER: <u>    </u>				
GENERAL INFORMATION						
WEATHER: SUN/CLEAR <u>✓</u> CLOUDY/RAIN <u>    </u> WIND DIRECTION <u>    </u> TEMPERATURE <u>70's</u>						
SHIPMENT VIA: FED-X <u>X</u> HAND DELIVER <u>    </u> COURIER <u>    </u> OTHER <u>    </u>						
SHIPPED TO: <u>RECRA Environmental, Inc.</u>						
COMMENTS: <u>    </u>						
SAMPLER: <u>L. Myers</u> OBSERVER: <u>    </u>						



453 135

## FIELD SAMPLING REPORT

LOCATION: <u>SB-120</u>			PROJECT: <u>3103</u>			
SITE: <u>34 (RV Fam Camp)</u>						
SAMPLE INFORMATION						
MATRIX: <u>SO</u>			SAMPLE ID: <u>SB-120-01</u>			
SAMPLING METHOD: <u>SS</u>			DUP/REP. OF: _____			
BEGINNING DEPTH: <u>5.0</u>			MATRIX SPIKE/MATRIX SPIKE DUPLICATE			
END DEPTH: <u>6.5 (TP)</u>			YES: <u>auto</u> NO: <u>✓</u>			
GRAB: <u>X</u> COMPOSITE: _____			DATE: <u>10/23/98</u> TIME: <u>1615</u>			
CONTAINER			PRESERVATIVE/	EXTRACTION	ANALYTICAL	ANALYSIS
SIZE	TYPE	#	PREPARATION	METHOD	METHOD	
4 oz	Glass	1	Ice	SW6036	SW8260	Volatile Organics
8 oz	Glass	1	Ice	SW3540	SW8270	Semivolatile Organics
8 oz	Glass	1	Ice	SW3540	SW8081	Pesticides
8 oz	Glass	1	Ice	SW3540	SW8082	PCBs
4 oz	Glass	1	Ice	SW3050	SW6010/	Inorganics/Mercury
					SW7471	
NOTABLE OBSERVATIONS						
WATER QUALITY		SAMPLE CHARACTERISTICS			MISCELLANEOUS	
pH		COLOR: <u>org. orange to light brown gitty material</u>				
Temp		ODOR: <u>largely cemented with calcite; CaCO<sub>3</sub></u>				
EC		OTHER: <u>concretions throughout, some larger than 2.0 mm in diameter</u>				
GENERAL INFORMATION						
WEATHER: <u>SUN/CLEAR</u> <u>✓</u>		<u>CLOUDY/RAIN</u>		WIND DIRECTION _____		TEMPERATURE <u>70's</u>
SHIPMENT VIA: <u>FED-X</u> <u>X</u>		<u>HAND DELIVER</u>		<u>COURIER</u>		<u>OTHER</u>
SHIPPED TO: <u>RECRA Environmental, Inc.</u>						
COMMENTS: <u>* Could not get below 6.5 ft bgs with direct push. Previous depths achieved through augering.</u>						
SAMPLER: <u>L. Myers</u>			OBSERVER: _____			

# FIELD SAMPLING REPORT

<b>LOCATION:</b> FIELDQC			<b>PROJECT:</b> 3103		
<b>SITE:</b> 34 (RV Fam Camp & Pipeline)					
SAMPLE INFORMATION					
<b>MATRIX:</b> WQ			<b>SAMPLE ID:</b> TB-100		
<b>SAMPLING METHOD:</b> NA			<b>DUP/REP. OF:</b> —		
<b>BEGINNING DEPTH:</b>			<b>MATRIX SPIKE/MATRIX SPIKE DUPLICATE</b>		
<b>END DEPTH:</b>			<b>YES:</b> NO: <input checked="" type="checkbox"/>		
<b>GRAB:</b> X <b>COMPOSITE:</b>			<b>DATE:</b> 10/23/98 <b>TIME:</b> 0830		

CONTAINER			PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
SIZE	TYPE	#				
40ml	Glass	2	HCL to pH < 2		SW8081	GC Volatiles
"	"	"	" "		SW8260	Volatiles

NOTABLE OBSERVATIONS		
WATER QUALITY	SAMPLE CHARACTERISTICS	MISCELLANEOUS
pH	COLOR:	
Temp	ODOR:	
EC	OTHER:	

GENERAL INFORMATION	
WEATHER: SUN/CLEAR <input checked="" type="checkbox"/> CLOUDY/RAIN	WIND DIRECTION TEMPERATURE 60's
SHIPMENT VIA: FED-X <input checked="" type="checkbox"/> HAND DELIVER	COURIER OTHER
SHIPPED TO: RECRA Environmental, Inc.	
COMMENTS:	
SAMPLER: L. Myers	OBSERVER:

453 137

## FIELD SAMPLING REPORT

LOCATION: <u>FIELDQC</u>			PROJECT: <u>3103</u>		
SITE: <u>34 (RV Fam Camp &amp; Pipeline)</u>					
SAMPLE INFORMATION					
MATRIX: <u>WQ</u>			SAMPLE ID: <u>EB-100</u>		
SAMPLING METHOD: <u>NA</u>			DUP/REP. OF: <u>      </u>		
BEGINNING DEPTH: <u>NA</u>			MATRIX SPIKE/MATRIX SPIKE DUPLICATE		
END DEPTH: <u>NA</u>			YES: <u>      </u> NO: <input checked="" type="checkbox"/>		
GRAB: <u>X</u> COMPOSITE: <u>      </u>			DATE: <u>10/23/98</u> TIME: <u>1415</u>		
CONTAINER			PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD
SIZE	TYPE	#			ANALYSIS
40ml	Glass	2	HCL to pH < 2		SW8021A Volatiles
40ml	Glass	2	HCL to pH < 2		SW8021A Volatiles
1 liter	Glass	2	ICE		SW8082 PCBs
"	"	"	ICE		SW8081 Pesticides
"	"	"	ICE		SW8270 SVOCs
500ml	Poly	1	HNO3 to pH < 2		SW6010F Total metals, mercury
NOTABLE OBSERVATIONS					
WATER QUALITY		SAMPLE CHARACTERISTICS			MISCELLANEOUS
pH		COLOR:			
Temp		ODOR:			
EC		OTHER:			
GENERAL INFORMATION					
WEATHER: SUN/CLEAR <input checked="" type="checkbox"/> CLOUDY/RAIN <u>      </u> WIND DIRECTION <u>      </u> TEMPERATURE <u>70's</u>					
SHIPMENT VIA: FED-X <u>X</u> HAND DELIVER <u>      </u> COURIER <u>      </u> OTHER <u>      </u>					
SHIPPED TO: <u>RECRA Environmental, Inc.</u>					
COMMENTS: <u>      </u>					
SAMPLER: <u>L. Myers</u>			OBSERVER: <u>      </u>		

453 138

# FIELD SAMPLING REPORT

<b>LOCATION:</b>			<u>FIELDOC</u>			<b>PROJECT:</b>			<u>3103</u>		
<b>SITE:</b>			<u>34 (RV Fam Camp &amp; Pipeline)</u>								
<b>SAMPLE INFORMATION</b>											
<b>MATRIX:</b>			<u>WQ</u>			<b>SAMPLE ID:</b>			<u>AB-100</u>		
<b>SAMPLING METHOD:</b>			<u>NA</u>			<b>DUP/REP. OF:</b>			<u>---</u>		
<b>BEGINNING DEPTH:</b>			<u>NA</u>			<b>MATRIX SPIKE/MATRIX SPIKE DUPLICATE</b>					
<b>END DEPTH:</b>			<u>NA</u>			<b>YES:</b>			<b>NO:</b> <input checked="" type="checkbox"/>		
<b>GRAB:</b> <input checked="" type="checkbox"/> <b>X COMPOSITE:</b>			<u>---</u>			<b>DATE:</b>			<u>10/24/98</u> <b>TIME:</b> <u>1040</u>		

CONTAINER			PRESERVATIVE/ PREPARATION	EXTRACTION METHOD	ANALYTICAL METHOD	ANALYSIS
SIZE	TYPE	#				
40ml	Glass	2	HCL topH<2		SUO8021	GC Volatiles (BTEX)
40ml	Gloss	2	" "		SUO8260	Volatiles

<b>NOTABLE OBSERVATIONS</b>		
WATER QUALITY	SAMPLE CHARACTERISTICS	MISCELLANEOUS
pH	COLOR:	
Temp	ODOR:	
EC	OTHER:	

<b>GENERAL INFORMATION</b>			
<b>WEATHER:</b> SUN/CLEAR <input checked="" type="checkbox"/> CLOUDY/RAIN ___ WIND DIRECTION ___ TEMPERATURE <u>60's</u>			
<b>SHIPMENT VIA:</b> FED-X <input checked="" type="checkbox"/> HAND DELIVER ___ COURIER ___ OTHER ___			
<b>SHIPPED TO:</b> RECRA Environmental, Inc.			
<b>COMMENTS:</b> _____			
<b>SAMPLER:</b> <u>L Myers</u>		<b>OBSERVER:</b> _____	

453 139

## Health and Safety Monitoring Sheets

## HEALTH & SAFETY EXPOSURE MONITORING

PROJECT #: 3103  
PROJECT LOCATION: Farm Camp  
PROJECT ACTIVITY: Drilling

453 140

DATE: Oct. 23, 1996  
LOCATION MONITORED: Breathing Zone at Drill Rig  
ACTIVITY MONITORED: Drilling

DRILL RIG TYPE/NO: Hollow Stem Auger  
# PERSONNEL AT THIS LOCATION: 8  
# PERSONNEL AFFECTED BY H&S MONITORING: 4

[illegible]

INSTRUMENT	LEGRV MODEL #	INSTRUMENT SERIAL #	CALIBRATION STANDARD			END OF DAY CALIBRATION	END OF DAY CALIBRATION
			CAL GAS	STD (ppm)	LOT #	CHECK	CHECK
FID							
PID							
%O2							
%LE							
H2S							
RAM							

FIELD TEAM LEADER SIGNATURE \_\_\_\_\_

## HEALTH & SAFETY EXPOSURE MONITORING

453 141

PROJECT #: 3103  
PROJECT LOCATION: Fam Camp  
PROJECT ACTIVITY: Drilling

DATE: Oct. 24, 1996

LOCATION MONITORED: Breathing Zone at Drill Rig

ACTIVITY MONITORED: Drilling

DRILL RIG TYPE/NO: Hollow Stem Auger

# PERSONNEL AT THIS LOCATION: 8

# PERSONNEL AFFECTED BY H&S MONITORING: 4

TIME (24 hr clock)	BACK- GROUND	MONITOR INTERVAL (boreholes depth)	FI0 (ppm)	FI0 (ppm)	%O2 (%)	%LEL (%)	H2S (ppm)	RAH (ppm)	OTHER	SAMPLES INITIALS
0840				0.0						LLM
1045				0.0						LLM
1305				0.0						LLM
1400				0.0						LLM
1500				1.5						LLM
Field activities not occurring during hours not recorded.										

INSTRUMENT	MFGV MODEL #	INSTRUMENT SERIAL #	CALIBRATION STANDARD			END OF DAY CALIBRATION	END OF DAY CALIBRATION
			CAL GAS	STD ppm	LOT #	CHECK	CHECK
FID							
PG							
XG							
HE							
HS							
RAM							

FIELD TEAM LEADER SIGNATURE \_\_\_\_\_

## HEALTH & SAFETY EXPOSURE MONITORING

PROJECT #: 3103  
PROJECT LOCATION: Farm Camp  
PROJECT ACTIVITY: Drilling

453 142

DATE: 10/25/96

LOCATION MONITORED: Breathing Zone at Drill Rig

ACTIVITY MONITORED: Drilling

DRILL RIG TYPE NO: Hollow Stem Auger

# PERSONNEL AT THIS LOCATION: 8

# PERSONNEL AFFECTED BY H&S MONITORING: 4

[illegible]

INSTRUMENT	MFG/V MODEL #	INSTRUMENT SERIAL #	CALIBRATION STANDARD			END OF DAY CALIBRATION	END OF DAY CALIBRATION
			CAL GAS	STD ppm	LOT #	CHECK	CHECK
FID							
FID							
%O2							
%LE							
%S							
RAM							

FIELD TEAM LEADER SIGNATURE \_\_\_\_\_



## HEALTH & SAFETY EXPOSURE MONITORING

453 143

PROJECT #: 3103  
PROJECT LOCATION: Farm Camp  
PROJECT ACTIVITY: Drilling

DATE: Oct. 26, 1996  
LOCATION MONITORED: Breathing zone at drill rig  
ACTIVITY MONITORED: Drilling

DRILL RIG TYPE/NO: Hollow stem Auger  
# PERSONNEL AT THIS LOCATION: 6  
# PERSONNEL AFFECTED BY H&S MONITORING: 4

TIME (24 hr clock)	BACK- GROUND	MONITOR INTERVAL (boreholes depth)	FD (ppm)	PD (ppm)	%O <sub>2</sub> (%)	%LEL (%)	H <sub>2</sub> S (ppm)	RAM (ppm)	OTHER	SAMPLES INITIALS
0840				0.0						LLM
0940				0.0						LLM
1050				5.6						LLM
1135				0.0						LLM
Field activities were not occurring where readings not recorded.										

INSTRUMENT	MFGV MODEL #	INSTRUMENT SERIAL #	CALIBRATION STANDARD			END OF DAY	END OF DAY
			CAL GAS	STD (ppm)	LOT #	CALIBRATION CHECK	CALIBRATION CHECK
FID							
PO							
NO2							
NO							
H2S							
RAM							

FIELD TEAM LEADER SIGNATURE \_\_\_\_\_

**Instrument Calibration Logs**

453 144

## EQUIPMENT CALIBRATION LOG SHEET

EQUIPMENT NUMBER: S.R. No. 167060

Page 1 of 1

EQUIPMENT	DESCRIPTION:
	H-Nu-DL101 - PID

[illegible]

HPV G95  
iPur Kit

EQUIPMENT NUMBER: SAR # 9105088-113

EQUIPMENT NUMBER: 10303	EQUIPMENT DESCRIPTION: <u>Explosimeter - Scientific</u>
	<u>Industrial</u>

Page 1 of 1

[illegible]

**Equipment Decontamination Log Sheet**

453 147

## EQUIPMENT DECONTAMINATION LOG SHEET

EQUIPMENT NUMBER: N/APage 1 of 3EQUIPMENT DESCRIPTION: 5 Foot Split Barrel Sampler - 2 Stainless Steel Barrels

DATE	TIME	DETERGENT WASH	TAP WATER RINSE	SOLVENT RINSE (TYPE)	WATER RINSE (TYPE)	AIR DRY	TYPE OF WRAPPING	RINSE SAMPLE ID	OPERATOR SIGNATURE	COMMENTS
22 Oct	0900	✓	✓	Methanol Hexane	Deionized	✓	N/A		SJZ	
"	0930	✓	✓	✓	✓	✓	N/A		"	
"	1000	✓	✓	✓	✓	✓	N/A		"	
"	1045	✓	✓	✓	✓	✓	N/A		"	
"	1120	✓	✓	✓	✓	✓	N/A	AFWQ- EB-01	"	
"	1145	✓	✓	✓	✓	✓	N/A		"	
"	1335	✓	✓	✓	✓	✓	N/A		"	
"	1410	✓	✓	✓	✓	✓	N/A		"	
"	1450	✓	✓	✓	✓	✓	N/A		"	
"	1600	✓	✓	✓	✓	✓	N/A		"	
"	1645	✓	✓	✓	✓	✓	N/A		"	
ITEM			MANUFACTURER	LOT NUMBERS	EXP. DATE					
DETERGENT	Alconox		Alconox Inc.	ASGG	N/A					
SOLVENT	Methanol		Burdick & Jackson	BN2044	N/A					
WATER	Ariston I		Ricca Chem	G281	Aug-97					

Pentair, Burdick &amp; Jackson, BMB01 N/A

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## EQUIPMENT DECONTAMINATION LOG SHEET

EQUIPMENT NUMBER: N/APage 2 of 5EQUIPMENT DESCRIPTION: 5 Foot Split Barrel Sampler & Two Stainless Steel Bends

DATE	TIME	DETERGENT WASH	TAP WATER RINSE	SOLVENT RINSE (TYPE)	WATER RINSE (TYPE)	AIR DRY	TYPE OF WRAPPING	RINSEATE SAMPLE ID	OPERATOR SIGNATURE	COMMENTS
22 Oct	1735	✓	✓	Industrial Pentane	ASTM Type 2	✓	N/A		SAB	
"	1810	✓	✓	✓	✓	✓	N/A		SAB	
23 Oct	0830	✓	✓	✓	✓	✓	N/A		SAB	
"	0900	✓	✓	✓	✓	✓	N/A		SAB	
"	1010	✓	✓	✓	✓	✓	N/A		SAB	
"	1040	✓	✓	✓	✓	✓	N/A		SAB	
"	1120	✓	✓	✓	✓	✓	N/A		SAB	
"	1145	✓	✓	✓	✓	✓	N/A		SAB	
"	1215	✓	✓	✓	✓	✓	N/A		SAB	
"	1400	✓	✓	✓	✓	✓	N/A		SAB	
"	1445	✓	✓	✓	✓	✓	N/A		SAB	
ITEM	MANUFACTURER		LOT NUMBERS		EXP. DATE					
DETERGENT	Alconox Inc		ASG6		N/A					
SOLVENT	Methanol Burdick & Jackson		BN244		N/A					
WATER	ASTM I RECCA Chem Corp		G-281		Aug 97					

Pentane Burdick &amp; Jackson Bm801 N/A

## EQUIPMENT DECONTAMINATION LOG SHEET

EQUIPMENT NUMBER: N/AEQUIPMENT DESCRIPTION: 5 Foot Split Barrel Sphagnum - Two Stainless Steel BandsPage 3 of 5

DATE	TIME	DETERGENT WASH	TAP WATER RINSE	SOLVENT RINSE (TYPE)	WATER RINSE (TYPE)	AIR DRY	TYPE OF WRAPPING	RINSE SAMPLE ID	OPERATOR SIGNATURE	COMMENTS
2300	1500	✓	✓	N/A no Hexane	✓	✓	N/A		SAB	
"	1555	✓	✓	✓	✓	✓	"	FC-WB EB-02	"	
2400	0840	✓	✓	✓	✓	✓	"		"	
"	0905	✓	✓	✓	✓	✓	"		"	
"	1150	✓	✓	✓	✓	✓	"		"	
"	1345	✓	✓	✓	✓	✓	N/A		"	
"	1410	✓	✓	✓	✓	✓	N/A		"	
"	1440	✓	✓	✓	✓	✓	N/A		"	
"	1510	✓	✓	✓	✓	✓	N/A		"	
"	1530	✓	✓	✓	✓	✓	N/A	*R-WB EB-03	"	
2800	0815	✓	✓	✓	✓	✓	N/A		SAB	
ITEM		MANUFACTURER	LOT NUMBERS	EXP. DATE						
DETERGENT	Alconox	Alconox Inc	AS 66	N/A						
SOLVENT	Wetland	Parabolics Jackson	BN-244	N/A						
WATER	ASTM	BICIA Chem Corp	G-281	Aug 07						

Bantane Parabolics Jackson BM 801 N/A

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## EQUIPMENT DECONTAMINATION LOG SHEET

EQUIPMENT NUMBER: N/AEQUIPMENT DESCRIPTION: 5 Foot Split Mixed Solvent & 2 Stainless Steel BowlsPage 4 of 5

DATE	TIME	DETERGENT WASH	TAP WATER RINSE	SOLVENT RINSE (TYPE)	WATER RINSE (TYPE)	AIR DRY	TYPE OF WRAPPING	RINSE SAMPLE ID	OPERATOR SIGNATURE	COMMENTS
2 Oct	0835	✓	✓	Hand Wash	ASTM ✓	✓	N/A		<i>[Signature]</i>	
"	0930	✓	✓	✓	✓	✓	N/A		"	
"	1030	✓	✓	✓	✓	✓	N/A		"	
"	1100	✓	✓	✓	✓	✓	N/A		"	
"	1120	✓	✓	✓	✓	✓	N/A		"	
"	1150	✓	✓	✓	✓	✓	N/A		"	
"	1210	✓	✓	✓	✓	✓	N/A		"	
"	1330	✓	✓	✓	✓	✓	N/A		"	
"	1415	✓	✓	✓	✓	✓	N/A		"	
"	1450	✓	✓	✓	✓	✓	N/A	FC-WQ FB-04	"	
2 Oct	0815	✓	✓	✓	✓	✓	N/A		"	
ITEM	MANUFACTURER		LOT NUMBERS		EXP. DATE					
DETERGENT	Alconox Inc		A5G-6		N/A					
SOLVENT	Inthand Burdick & Jackson		BN-244		N/A					
WATER	ASTM L Ricca Chem Corp		G281		Aug 97					

Pentane Burdick &amp; Jackson BM801 N/A

## EQUIPMENT DECONTAMINATION LOG SHEET

EQUIPMENT NUMBER: N/AEQUIPMENT DESCRIPTION: S Fort Solt Barrel Sample's 2 17' in Use Seal BandsPage 5 of 5

DATE	TIME	DETERGENT WASH	TAP WATER RINSE	SOLVENT RINSE (TYPE)	WATER RINSE (TYPE)	AIR DRY	TYPE OF WRAPPING	RINSEATE SAMPLE ID	OPERATOR SIGNATURE	COMMENTS
26 Oct	0845	✓	✓	methanol Hershey	✓	✓	N/A		SHBilley	
21	0815	✓	✓	✓	✓	✓	N/A		"	
11	0940	✓	✓	✓	✓	✓	N/A		"	
11	1000	✓	✓	✓	✓	✓	N/A		"	
11	1050	✓	✓	✓	✓	✓	N/A		"	
11	1110	✓	✓	✓	✓	✓	N/A		"	
11	1135	✓	✓	✓	✓	✓	N/A		"	
11	1155	✓	✓	✓	✓	✓	N/A		"	
11	1230	✓	✓	✓	✓	✓	N/A	FC-WR 28-05	"	
ITEM		MANUFACTURER	LOT NUMBERS	EXP. DATE						
DETERGENT	Alconix	Alconix Inc	AS-66	N/A						
SOLVENT	Methanol	Beckman's Johnson	2N-244	N/A						
WATER	ASTM	RICA Corp	G-281	Aug 97						

Pentone Beckman's Johnson Ben-801 N/A

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**TAB**

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**APPENDIX G**

453 154

**CHAIN-OF-CUSTODY FORMS**

**CHAIN OF CUSTODY RECORD**

**RECRA LABNET**, a division of Recra Environmental, Inc.

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[illegible]



**TAB**

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APPENDIX H

SOIL BOREHOLE SAMPLING ANALYTE LIST



**Inorganics by Inductively Coupled Plasma (ICP), Method 6010A;  
Atomic Absorption (AA)**

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Aluminum	Magnesium
Antimony	Manganese
Arsenic	Mercury (Method 7471, by cold vapor)
Barium	Nickel
Beryllium	Potassium
Cadmium	Selenium
Calcium	Silver
Chromium	Sodium
Cobalt	Thallium
Copper	Vanadium
Iron	Zinc
Lead (Method 7421)	

**Volatile Organics by GC/MS, Method 8240B**

---

1,1,1-Trichloroethane	Chlorobenzene
1,1,2,2-Tetrachloroethane	Chloroethane
1,1,2-Trichloroethane	Chloroform
1,1-Dichloroethane	Chloromethane
1,1-Dichloroethene	cis 1,2-Dichloroethene
1,2,3-Trichloropropane	cis 1,3-Dichloropropene
1,2-Dichloroethane	Chlorodibromomethane
1,2-Dichloropropane	Ethylbenzene
Methyl ethyl ketone	Methylene chloride
2-Chloroethyl vinyl ether	Styrene
2-Hexanone	Trichloroethene
Methyl isobutyl ketone	Tetrachloroethene
Acetone	Toluene
Benzene	trans 1,2-Dichloroethene
Bromodichloromethane	trans 1,3-Dichloropropene
Bromoform	Vinyl acetate
Bromomethane	Vinyl chloride
Carbon disulfide	m,p-Xylene
Carbon tetrachloride	o-Xylene

Base/Neutral and Acid Extractable Organics by GC/MS, Method 8270B

1,2,4-Trichlorobenzene	Dibenz (a,h)anthracene
1,2-Dichlorobenzene	Dibenzofuran
1,3-Dichlorobenzene	Diethyl phthalate
1,4-Dichlorobenzene	Dimethyl phthalate
2,4-Dinitrotoluene	Fluoranthene
2,6-Dinitrotoluene	Fluorene
2-Chloronaphthalene	Hexachlorobenzene
2-Methylnaphthalene	Hexachlorobutadiene
2-Nitroaniline	Hexachlorocyclopentadiene
3-Nitroaniline	Hexachloroethane
3,3'-Dichlorobenzidine	Indeno (1,2,3-cd) pyrene
4-Bromophenyl phenyl ether	Isophorone
4-Chloroaniline	N-Nitrosodiephenylamine
4-Chlorophenyl phenyl ether	N-Nitrosodi-n-propylamine
4-Nitroaniline	Naphthalene
Acenaphthylene	Nitrobenzene
Acenaphthene	Phenanthrene
Anthracene	Pyrene
Benzo (a) anthracene	2,4,5-Trichlorophenol
Benzo (a) pyrene	2,4,6-Trichlorophenol
2,4-Dichlorophenol	2,4-Dimethylphenol
Benzo (b) fluoranthene	2,4-Dinitrophenol
Benzo (k) fluoranthene	2-Chlorophenol
Benzo (g,h,i) perylene	2-Methylphenol
Benzyl alcohol	2-Nitrophenol
Bis (2-chloroethyl) ether	4,6-Dinitro-2-methylphenol
Bis (2-chloroethoxy) methane	4-Chloro-3-methylphenol
Bis (2-chloroisopropyl) ether	4-Methylphenol
Bis (2-ethylhexyl) phthalate	4-Nitrophenol
Butyl benzyl phthalate	Benzoic acid
Chrysene	Pentachlorophenol
Di-n-butylphthalate	Phenol
Di-n-octylphthalate	

Pesticides by GC, Method 8080A

Alpha-BHC	Endrin
Beta-BHC	Endosulfan II
Delta-BHC	4,4'-DDD
Gamma-BHC (Lindane)	Endosulfan sulfate
Heptachlor	4,4'-DDT
Aldrin	Methoxychlor
Heptachlor epoxide	Endrin aldehyde
Endosulfan I	Toxaphene
Dieldrin	Chlordane
4,4'-DDE	

# Soil Borehole Sample Analyte List

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## PCBs by GC, Method 8080A

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Aroclor	1016
Aroclor	1221
Aroclor	1232
Aroclor	1242
Aroclor	1248
Aroclor	1254
Aroclor	1260

# TAB

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APPENDIX I

SUMMARY OF EXTRACTION AND ANALYSIS TIME

**SUMMARY OF EXTRACTION AND ANALYSIS DATES**  
**RV FAMILY CAMPGROUND DRILLING PROJECT**  
**NAS FT WORTH JRB (FORMERLY CARSWELL AFB)**

LOCATION ID	FIELD SAMPLE NO	LABORATORY SAMPLE NO	SAMPLE MATRIX	SAMPLE TYPE	ANALYSIS METHOD	SAMPLE DATE	EXTRACTION DATE	ELAPSED TIME (DAYS)	ANALYSIS DATE	ELAPSED TIME (DAYS)
SB-116	SB-116-01	A8477201	SO	N1	E245.5	23-Oct-1998	28-Oct-1998	5	28-Oct-1998	5
SB-117	SB-117-01	A8477202	SO	N1	E245.5	23-Oct-1998	28-Oct-1998	5	28-Oct-1998	5
SB-118	SB-118-01	A8477203	SO	N1	E245.5	23-Oct-1998	28-Oct-1998	5	28-Oct-1998	5
SB-119	SB-119-01	A8477204	SO	N1	E245.5	23-Oct-1998	28-Oct-1998	5	28-Oct-1998	5
SB-119	SB-119-01	A8477204MS	SO	MS1	E245.5	23-Oct-1998	28-Oct-1998	5	28-Oct-1998	5
SB-119	SB-119-01	A8477204SD	SO	SD1	E245.5	23-Oct-1998	28-Oct-1998	5	28-Oct-1998	5
SB-119	SB-119-02	A8477205	SO	FD1	E245.5	23-Oct-1998	28-Oct-1998	5	28-Oct-1998	5
SB-120	SB-120-01	A8477206	SO	N1	E245.5	23-Oct-1998	28-Oct-1998	5	28-Oct-1998	5
FIELDQC	EB-100	A8477207	WQ	EB1	E245.5	23-Oct-1998	29-Oct-1998	6	29-Oct-1998	6
SB-116	SB-116-01	A8477201	SO	N1	SW6010	23-Oct-1998	28-Oct-1998	5	31-Oct-1998	8
SB-117	SB-117-01	A8477202	SO	N1	SW6010	23-Oct-1998	28-Oct-1998	5	31-Oct-1998	8
SB-118	SB-118-01	A8477203	SO	N1	SW6010	23-Oct-1998	28-Oct-1998	5	31-Oct-1998	8
SB-119	SB-119-01	A8477204	SO	N1	SW6010	23-Oct-1998	28-Oct-1998	5	31-Oct-1998	8
SB-119	SB-119-01	A8477204MS	SO	MS1	SW8010	23-Oct-1998	28-Oct-1998	5	31-Oct-1998	8
SB-119	SB-119-01	A8477204SD	SO	SD1	SW6010	23-Oct-1998	28-Oct-1998	5	31-Oct-1998	8
SB-119	SB-119-02	A8477205	SO	FD1	SW6010	23-Oct-1998	28-Oct-1998	5	31-Oct-1998	8
SB-120	SB-120-01	A8477206	SO	N1	SW6010	23-Oct-1998	28-Oct-1998	5	31-Oct-1998	8
FIELDQC	EB-100	A8477207	WQ	EB1	SW6010	23-Oct-1998	2-Nov-1998	10	8-Nov-1998	16
FIELDQC	EB-100	A8477207	WQ	EB1	SW8021	23-Oct-1998	27-Oct-1998	4	27-Oct-1998	4
FIELDQC	TB-100	A8477208	WQ	TB1	SW8021	23-Oct-1998	27-Oct-1998	4	27-Oct-1998	4
SB-116	SB-116-01	A8477201	SO	N1	SW8081	23-Oct-1998	5-Nov-1998	13	25-Nov-1998	33
SB-117	SB-117-01	A8477202	SO	N1	SW8081	23-Oct-1998	5-Nov-1998	13	26-Nov-1998	34
SB-118	SB-118-01	A8477203	SO	N1	SW8081	23-Oct-1998	5-Nov-1998	13	26-Nov-1998	34
SB-119	SB-119-01	A8477204	SO	N1	SW8081	23-Oct-1998	5-Nov-1998	13	26-Nov-1998	34
SB-119	SB-119-01	A8477204MS	SO	MS1	SW8081	23-Oct-1998	5-Nov-1998	13	26-Nov-1998	34
SB-119	SB-119-01	A8477204SD	SO	SD1	SW8081	23-Oct-1998	5-Nov-1998	13	26-Nov-1998	34
SB-119	SB-119-02	A8477205	SO	FD1	SW8081	23-Oct-1998	5-Nov-1998	13	26-Nov-1998	34
SB-120	SB-120-01	A8477206	SO	N1	SW8081	23-Oct-1998	5-Nov-1998	13	26-Nov-1998	34

**SUMMARY OF EXTRACTION AND ANALYSIS DATES**  
RV FAMILY CAMPGROUND DRILLING PROJECT  
NAS FT WORTH JRB (FORMERLY CARSWELL AFB)

LOCATION ID	FIELD SAMPLE NO	LABORATORY SAMPLE NO	SAMPLE MATRIX	SAMPLE TYPE	ANALYSIS METHOD	SAMPLE DATE	EXTRACTION DATE	ELAPSED TIME (DAYS)	ANALYSIS DATE	ELAPSED TIME (DAYS)
FIELDQC	EB-100	A8477207	WQ	EB1	SW8081	23-Oct-1998	30-Oct-1998	7	3-Nov-1998	11
FIELDQC	EB-100	A8477207MS	WQ	EB1	SW8081	23-Oct-1998	30-Oct-1998	7	3-Nov-1998	11
FIELDQC	EB-100	A8477207SD	WQ	EB1	SW8081	23-Oct-1998	30-Oct-1998	7	3-Nov-1998	11
SB-116	SB-116-01	A8477201	SO	N1	SW8082	23-Oct-1998	5-Nov-1998	13	6-Nov-1998	14
SB-117	SB-117-01	A8477202	SO	N1	SW8082	23-Oct-1998	5-Nov-1998	13	6-Nov-1998	14
SB-118	SB-118-01	A8477203	SO	N1	SW8082	23-Oct-1998	5-Nov-1998	13	6-Nov-1998	14
SB-119	SB-119-01	A8477204	SO	N1	SW8082	23-Oct-1998	5-Nov-1998	13	6-Nov-1998	14
SB-119	SB-119-01	A8477204MS	SO	MS1	SW8082	23-Oct-1998	5-Nov-1998	13	6-Nov-1998	14
SB-119	SB-119-01	A8477204SD	SO	SD1	SW8082	23-Oct-1998	5-Nov-1998	13	6-Nov-1998	14
SB-119	SB-119-02	A8477205	SO	FD1	SW8082	23-Oct-1998	5-Nov-1998	13	6-Nov-1998	14
SB-120	SB-120-01	A8477206	SO	N1	SW8082	23-Oct-1998	5-Nov-1998	13	6-Nov-1998	14
FIELDQC	EB-100	A8477207	WQ	EB1	SW8082	23-Oct-1998	30-Oct-1998	7	4-Nov-1998	12
SB-116	SB-116-01	A8477201	SO	N1	SW8260	23-Oct-1998	5-Nov-1998	13	5-Nov-1998	13
SB-117	SB-117-01	A8477202	SO	N1	SW8260	23-Oct-1998	5-Nov-1998	13	5-Nov-1998	13
SB-118	SB-118-01	A8477203	SO	N1	SW8260	23-Oct-1998	5-Nov-1998	13	5-Nov-1998	13
SB-119	SB-119-01	A8477204	SO	N1	SW8260	23-Oct-1998	5-Nov-1998	13	5-Nov-1998	13
SB-119	SB-119-01	A8477204MS	SO	MS1	SW8260	23-Oct-1998	5-Nov-1998	13	5-Nov-1998	13
SB-119	SB-119-01	A8477204SD	SO	SD1	SW8260	23-Oct-1998	5-Nov-1998	13	5-Nov-1998	13
SB-119	SB-119-02	A8477205	SO	FD1	SW8260	23-Oct-1998	5-Nov-1998	13	5-Nov-1998	13
SB-120	SB-120-01	A8477206	SO	N1	SW8260	23-Oct-1998	5-Nov-1998	13	5-Nov-1998	13
FIELDQC	EB-100	A8477207	WQ	EB1	SW8260	23-Oct-1998	5-Nov-1998	13	5-Nov-1998	13
FIELDQC	TB-100	A8477208	WQ	TB1	SW8260	23-Oct-1998	5-Nov-1998	13	5-Nov-1998	13
SB-116	SB-116-01	A8477201	SO	N1	SW8270	23-Oct-1998	6-Nov-1998	14	24-Nov-1998	32
SB-117	SB-117-01	A8477202	SO	N1	SW8270	23-Oct-1998	6-Nov-1998	14	24-Nov-1998	32
SB-118	SB-118-01	A8477203	SO	N1	SW8270	23-Oct-1998	6-Nov-1998	14	24-Nov-1998	32
SB-119	SB-119-01	A8477204	SO	N1	SW8270	23-Oct-1998	6-Nov-1998	14	24-Nov-1998	32
SB-119	SB-119-01	A8477204MS	SO	MS1	SW8270	23-Oct-1998	6-Nov-1998	14	24-Nov-1998	32
SB-119	SB-119-01	A8477204SD	SO	SD1	SW8270	23-Oct-1998	6-Nov-1998	14	24-Nov-1998	32

SUMMARY OF EXTRACTION AND ANALYSIS DATES												
RV FAMILY CAMPGROUND DRILLING PROJECT												
NAS FT WORTH JRB (FORMERLY CARSWELL AFB)												
LOCATION	FIELD	LABORATORY	SAMPLE	SAMPLE	ANALYSIS	SAMPLE	EXTRACTION	ELAPSED TIME	ANALYSIS	ELAPSED TIME		
ID	SAMPLE NO	SAMPLE NO	MATRIX	TYPE	METHOD	DATE	DATE	(DAYS)	DATE	(DAYS)		
SB-119	SB-119-02	A8477205	SO	FD1	SW8270	23-Oct-1998	6-Nov-1998	14	24-Nov-1998	32		
SB-120	SB-120-01	A8477206	SO	N1	SW8270	23-Oct-1998	6-Nov-1998	14	24-Nov-1998	32		
FIELDQC	EB-100	A8477207	WQ	EB1	SW8270	23-Oct-1998	30-Oct-1998	7	23-Nov-1998	31		
FIELDQC	EB-100	A8477207MS	WQ	EB1	SW8270	23-Oct-1998	30-Oct-1998	7	23-Nov-1998	31		
FIELDQC	EB-100	A8477207SD	WQ	EB1	SW8270	23-Oct-1998	30-Oct-1998	7	23-Nov-1998	31		

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# TAB

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**APPENDIX J**

**LABORATORY ANALYSES DATA SHEETS**

Analytical Method: 8260-A98AAB #: A9B00588

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Lab Name: STL BuffaloContract #: F46162495D80Base/Command: NAS Ft Worth/Offsite WeapPrime Contractor: The Environmental Company

## Field Sample ID

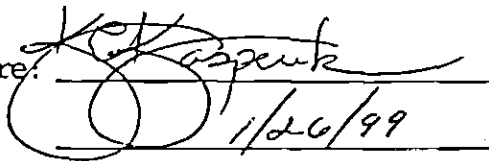
## Lab Sample ID

SB-116-01A8477201SB-117-01A8477202SB-118-01A8477203SB-119-01A8477204SB-119-01 MSA8477204MSSB-119-01 SDA8477204SDSB-119-02A8477205SB-120-01A8477206

## Comments:

See Case Narrative

I certify this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Name: Kenneth E. KasperekDate: 1/26/99Title: Laboratory Director

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000202

453 170

Analytical Method: B260-A98

AAB #: A9800588

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: S8-116-01

Lab Sample ID: A8477201

Matrix: SOIL

% Solids: 90.1

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,1,1,2-TETRACHLOROETHANE	0.0011	0.0050	0.0011	U
1,1,1-TRICHLOROETHANE	0.0010	0.0050	0.0010	U
1,1,2,2-TETRACHLOROETHANE	0.0014	0.0050	0.0014	U
1,1,2-TRICHLOROETHANE	0.0012	0.0050	0.0012	U
1,1-DICHLOROETHANE	0.00086	0.0050	0.00086	U
1,1-DICHLOROETHENE	0.0011	0.0050	0.0011	U
1,1-DICHLOROPROPENE	0.00091	0.0050	0.00091	U
1,2,3-TRICHLOROBENZENE	0.0012	0.0050	0.0012	U
1,2,3-TRICHLOROPROPANE	0.0014	0.0050	0.0014	U
1,2,4-TRICHLOROBENZENE	0.0014	0.0050	0.0014	U
1,2,4-TRIMETHYLBENZENE	0.00066	0.0050	0.00066	U
1,2-DICHLOROETHANE	0.0012	0.0050	0.0012	U
1,2-DICHLOROBENZENE	0.0010	0.0050	0.0010	U
1,2-DIBROMO-3-CHLOROPROPANE	0.0017	0.0050	0.0017	U
1,2-DICHLOROPROPANE	0.0012	0.0050	0.0012	U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.0014	0.0050	0.0014	U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	0.00066	0.0050	0.00066	U
1,3-DICHLOROBENZENE	0.00092	0.0050	0.00092	U
1,3-DICHLOROPROPANE	0.00026	0.0050	0.00026	U
1,4-DICHLOROBENZENE	0.00099	0.0050	0.00099	U
1-CHLOROHEXANE	0.00087	0.0050	0.00087	U
2,2-DICHLOROPROPANE	0.0011	0.0050	0.0011	U
2-CHLOROTOLUENE	0.00091	0.0050	0.00091	U
4-CHLOROTOLUENE	0.00091	0.0050	0.00091	U
BENZENE	0.00072	0.0050	0.00072	U

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000203

Analytical Method: 8260-A98AAB #: A9800588Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: SB-116-01Lab Sample ID: A8477201Matrix: SOIL% Solids: 90.1Dilution: 1.00Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
BROMOBENZENE	0.00083	0.0050	0.00083	U
BROMOCHLOROMETHANE	0.00095	0.0050	0.00095	U
BROMODICHLOROMETHANE	0.0012	0.0050	0.0012	U
BROMOFORM	0.0016	0.0050	0.0016	U
BROMOMETHANE	0.0017	0.0050	0.0017	U
CARBON TETRACHLORIDE	0.00081	0.0050	0.00081	U
CHLOROBENZENE	0.0012	0.0050	0.0012	U
CHLOROETHANE	0.0014	0.0050	0.0014	U
CHLOROFORM	0.00086	0.0050	0.00086	U
CHLOROMETHANE	0.0012	0.0050	0.0012	U
cis-1,2-DICHLOROETHYLENE	0.00080	0.0050	0.00080	U
cis-1,3-DICHLOROPROPENE	0.00075	0.0050	0.00075	U
DIBROMOCHLOROMETHANE	0.0013	0.0050	0.0013	U
DIBROMOMETHANE	0.0013	0.0050	0.0013	U
DICHLOROFLUOROMETHANE	0.0013	0.0050	0.0013	U
ETHYLBENZENE	0.0012	0.0050	0.0012	U
HEXACHLOROBUTADIENE	0.0010	0.0050	0.0010	U
ISOPROPYLBENZENE (CUMENE)	0.00079	0.0050	0.00079	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.0020	0.0050	0.0020	U
METHYLENE CHLORIDE	0.00095	0.0050	0.00095	U
n-BUTYLBENZENE	0.00076	0.0050	0.00076	U
n-PROPYLBENZENE	0.00065	0.0050	0.00065	U
NAPHTHALENE	0.0015	0.0050	0.0015	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.0011	0.0050	0.0011	U
P-CYME (p-ISOPROPYLTOLUENE)	0.0010	0.0050	0.0010	U

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Analytical Method: B260-A98

AAS #: A9800588 **453 172**

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: SB-116-01

Lab Sample ID: A8477201

Matrix: SOIL

% Solids: 90.1

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
P-XYLENE (1,4-DIMETHYLBENZENE)	0.0020	0.0050	0.0020	U
SEC-BUTYLBENZENE	0.00074	0.0050	0.00074	U
STYRENE	0.00096	0.0050	0.00096	U
TRICHLOROETHYLENE (TCE)	0.00073	0.0050	0.00073	U
t-BUTYLBENZENE	0.00080	0.0050	0.00080	U
TETRACHLOROETHYLENE (PCE)	0.00073	0.0050	0.00073	U
TOLUENE	0.0012	0.0050	0.0012	U
trans-1,2-DICHLOROETHENE	0.00069	0.0050	0.00069	U
trans-1,3-DICHLOROPROPENE	0.0016	0.0050	0.0016	U
TRICHLOROFLUOROMETHANE	0.0018	0.0050	0.0018	U
VINYL CHLORIDE	0.0011	0.0050	0.0011	U

Comments:

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453 173

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ORGANIC ANALYSES DATA SHEET 2  
RESULTSAnalytical Method: 8260-A98AAB #: A9800588Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: SB-117-01Lab Sample ID: A8477202Matrix: SOIL% Solids: 74.1Dilution: 1.00Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,1,1,2-TETRACHLOROETHANE	0.0013	0.0050	0.0013	U
1,1,1-TRICHLOROETHANE	0.0013	0.0050	0.0013	U
1,1,2,2-TETRACHLOROETHANE	0.0017	0.0050	0.0017	U
1,1,2-TRICHLOROETHANE	0.0015	0.0050	0.0015	U
1,1-DICHLOROETHANE	0.0010	0.0050	0.0010	U
1,1-DICHLOROETHENE	0.0013	0.0050	0.0013	U
1,1-DICHLOROPROPENE	0.0011	0.0050	0.0011	U
1,2,3-TRICHLOROBENZENE	0.0015	0.0050	0.0015	U
1,2,3-TRICHLOROPROPANE	0.0017	0.0050	0.0017	U
1,2,4-TRICHLOROBENZENE	0.0016	0.0050	0.0016	U
1,2,4-TRIMETHYLBENZENE	0.00079	0.0050	0.00079	U
1,2-DICHLOROETHANE	0.0014	0.0050	0.0014	U
1,2-DICHLOROBENZENE	0.0012	0.0050	0.0012	U
1,2-DIBROMO-3-CHLOROPROPANE	0.0021	0.0050	0.0021	U
1,2-DICHLOROPROPANE	0.0014	0.0050	0.0014	U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.0017	0.0050	0.0017	U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	0.00079	0.0050	0.00079	U
1,3-DICHLOROBENZENE	0.0011	0.0050	0.0011	U
1,3-DICHLOROPROPANE	0.00031	0.0050	0.00031	U
1,4-DICHLOROBENZENE	0.0012	0.0050	0.0012	U
1-CHLOROHEXANE	0.0010	0.0050	0.0010	U
2,2-DICHLOROPROPANE	0.0013	0.0050	0.0013	U
2-CHLOROTOLUENE	0.0011	0.0050	0.0011	U
4-CHLOROTOLUENE	0.0011	0.0050	0.0011	U
BENZENE	0.00087	0.0050	0.00087	U

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000206

453 174

Analytical Method: B260-A98

AAB #: A9800588

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: SB-117-01

Lab Sample ID: A8477202

Matrix: SOIL

% Solids: 74.1

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
BROMOBENZENE	0.0010	0.0050	0.0010	U
BROMOCHLOROMETHANE	0.0011	0.0050	0.0011	U
BROMODICHLOROMETHANE	0.0014	0.0050	0.0014	U
BROMOFORM	0.0019	0.0050	0.0019	U
BROMOMETHANE	0.0020	0.0050	0.0020	U
CARBON TETRACHLORIDE	0.00097	0.0050	0.00097	U
CHLOROBENZENE	0.0015	0.0050	0.0015	U
CHLOROETHANE	0.0017	0.0050	0.0017	U
CHLOROFORM	0.0010	0.0050	0.0010	U
CHLOROMETHANE	0.0014	0.0050	0.0014	U
cis-1,2-DICHLOROETHYLENE	0.00096	0.0050	0.00096	U
cis-1,3-DICHLOROPROPENE	0.00090	0.0050	0.00090	U
DIBROMOCHLOROMETHANE	0.0015	0.0050	0.0015	U
DIBROMOMETHANE	0.0015	0.0050	0.0015	U
DICHLORODIFLUOROMETHANE	0.0015	0.0050	0.0015	U
ETHYLBENZENE	0.0014	0.0050	0.0014	U
HEXACHLOROBUTADIENE	0.0012	0.0050	0.0012	U
ISOPROPYLBENZENE (CUMENE)	0.00094	0.0050	0.00094	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.0024	0.0050	0.0024	U
METHYLENE CHLORIDE	0.0011	0.0050	0.0011	U
n-BUTYLBENZENE	0.00091	0.0050	0.00091	U
n-PROPYLBENZENE	0.00077	0.0050	0.00077	U
NAPHTHALENE	0.0018	0.0050	0.0018	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.0013	0.0050	0.0013	U
P-CYME (p-ISOPROPYLTOLUENE)	0.0012	0.0050	0.0012	U



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000207

Analytical Method: 8260-A98AAB #: A9B00588Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: SB-117-01Lab Sample ID: A8477202Matrix: SOIL% Solids: 74.1Dilution: 1.00Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
P-XYLENE (1,4-DIMETHYLBENZENE)	0.0024	0.0050	0.0024	U
SEC-BUTYLBENZENE	0.00089	0.0050	0.00089	U
STYRENE	0.0011	0.0050	0.0011	U
TRICHLOROETHYLENE (TCE)	0.00087	0.0050	0.00087	U
t-BUTYLBENZENE	0.00095	0.0050	0.00095	U
TETRACHLOROETHYLENE (PCE)	0.00087	0.0050	0.00087	U
TOLUENE	0.0015	0.0050	0.0019	F
trans-1,2-DICHLOROETHENE	0.00082	0.0050	0.00082	U
trans-1,3-DICHLOROPROPENE	0.0019	0.0050	0.0019	U
TRICHLOROFLUOROMETHANE	0.0021	0.0050	0.0021	U
VINYL CHLORIDE	0.0013	0.0050	0.0013	U

Comments:

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RESULTS

000208

453 176

Analytical Method: 8260-A98

AAB #: A9800588

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: S8-118-01

Lab Sample ID: A8477203

Matrix: SOIL

% Solids: 89.6

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,1,1,2-TETRACHLOROETHANE	0.0010	0.0050	0.0010	U
1,1,1-TRICHLOROETHANE	0.0010	0.0050	0.0010	U
1,1,2,2-TETRACHLOROETHANE	0.0014	0.0050	0.0014	U
1,1,2-TRICHLOROETHANE	0.0012	0.0050	0.0012	U
1,1-DICHLOROETHANE	0.00085	0.0050	0.00085	U
1,1-DICHLOROETHENE	0.0011	0.0050	0.0011	U
1,1-DICHLOROPROPENE	0.00090	0.0050	0.00090	U
1,2,3-TRICHLOROBENZENE	0.0012	0.0050	0.0012	U
1,2,3-TRICHLOROPROPANE	0.0014	0.0050	0.0014	U
1,2,4-TRICHLOROBENZENE	0.0013	0.0050	0.0013	U
1,2,4-TRIMETHYLBENZENE	0.00065	0.0050	0.00065	U
1,2-DICHLOROETHANE	0.0012	0.0050	0.0012	U
1,2-DICHLOROBENZENE	0.0010	0.0050	0.0010	U
1,2-DIBROMO-3-CHLOROPROPANE	0.0017	0.0050	0.0017	U
1,2-DICHLOROPROPANE	0.0012	0.0050	0.0012	U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.0014	0.0050	0.0014	U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	0.00065	0.0050	0.00065	U
1,3-DICHLOROBENZENE	0.00091	0.0050	0.00091	U
1,3-DICHLOROPROPANE	0.00026	0.0050	0.00026	U
1,4-DICHLOROBENZENE	0.00098	0.0050	0.00098	U
1-CHLOROHEXANE	0.00086	0.0050	0.00086	U
2,2-DICHLOROPROPANE	0.0010	0.0050	0.0010	U
2-CHLOROTOLUENE	0.00090	0.0050	0.00090	U
4-CHLOROTOLUENE	0.00090	0.0050	0.00090	U
BENZENE	0.00071	0.0050	0.00071	U

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000209

453 177

Analytical Method: 8260-A98

AAB #: A9800588

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: SB-118-01

Lab Sample ID: A8477203

Matrix: SOIL

% Solids: 89.6

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
BROMOBENZENE	0.00082	0.0050	0.00082	U
BROMOCHLOROMETHANE	0.00093	0.0050	0.00093	U
BROMODICHLOROMETHANE	0.0011	0.0050	0.0011	U
BROMOFORM	0.0016	0.0050	0.0016	U
BROMOMETHANE	0.0016	0.0050	0.0016	U
CARBON TETRACHLORIDE	0.00080	0.0050	0.00080	U
CHLOROBENZENE	0.0012	0.0050	0.0012	U
CHLOROETHANE	0.0014	0.0050	0.0014	U
CHLOROFORM	0.00084	0.0050	0.00084	U
CHLOROMETHANE	0.0012	0.0050	0.0012	U
cis-1,2-DICHLOROETHYLENE	0.00079	0.0050	0.00079	U
cis-1,3-DICHLOROPROPENE	0.00074	0.0050	0.00074	U
DIBROMOCHLOROMETHANE	0.0012	0.0050	0.0012	U
DIBROMOMETHANE	0.0013	0.0050	0.0013	U
DICHLORODIFLUOROMETHANE	0.0012	0.0050	0.0012	U
ETHYLBENZENE	0.0011	0.0050	0.0011	U
HEXACHLOROBUTADIENE	0.0010	0.0050	0.0010	U
ISOPROPYLBENZENE (CUMENE)	0.00078	0.0050	0.00078	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.0020	0.0050	0.0020	U
METHYLENE CHLORIDE	0.00094	0.0050	0.00094	U
n-BUTYLBENZENE	0.00075	0.0050	0.00075	U
n-PROPYLBENZENE	0.00064	0.0050	0.00064	U
NAPHTHALENE	0.0015	0.0050	0.0015	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.0011	0.0050	0.0011	U
P-CYME (p-ISOPROPYLTOLUENE)	0.00098	0.0050	0.00098	U

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000210

453 178

Analytical Method: 8260-A98

AAB #: A9800588

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: SB-118-01

Lab Sample ID: A8477203

Matrix: SOIL

% Solids: 89.6

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
P-XYLENE (1,4-DIMETHYLBENZENE)	0.0020	0.0050	0.0020	U
SEC-BUTYLBENZENE	0.00073	0.0050	0.00073	U
STYRENE	0.00094	0.0050	0.00094	U
TRICHLOROETHYLENE (TCE)	0.00072	0.0050	0.00072	U
t-BUTYLBENZENE	0.00078	0.0050	0.00078	U
TETRACHLOROETHYLENE(PCE)	0.00072	0.0050	0.00072	U
TOLUENE	0.0012	0.0050	0.0012	U
trans-1,2-DICHLOROETHENE	0.00068	0.0050	0.00068	U
trans-1,3-DICHLOROPROPENE	0.0015	0.0050	0.0015	U
TRICHLOROFLUOROMETHANE	0.0017	0.0050	0.0023	F
VINYL CHLORIDE	0.0011	0.0050	0.0011	U

Comments:

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ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000211

Analytical Method: 8260-A98AAB #: A9B00588Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: SB-119-01Lab Sample ID: A8477204Matrix: SOIL% Solids: 82.5Dilution: 1.00Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,1,1,2-TETRACHLOROETHANE	0.0011	0.0050	0.0011	U
1,1,1-TRICHLOROETHANE	0.0011	0.0050	0.0011	U
1,1,2,2-TETRACHLOROETHANE	0.0015	0.0050	0.0015	U
1,1,2-TRICHLOROETHANE	0.0013	0.0050	0.0013	U
1,1-DICHLOROETHANE	0.00093	0.0050	0.00093	U
1,1-DICHLOROETHENE	0.0012	0.0050	0.0012	U
1,1-DICHLOROPROPENE	0.00098	0.0050	0.00098	U
1,2,3-TRICHLOROBENZENE	0.0013	0.0050	0.0013	U
1,2,3-TRICHLOROPROPANE	0.0016	0.0050	0.0016	U
1,2,4-TRICHLOROBENZENE	0.0015	0.0050	0.0015	U
1,2,4-TRIMETHYLBENZENE	0.00071	0.0050	0.00071	U
1,2-DICHLOROETHANE	0.0013	0.0050	0.0013	U
1,2-DICHLOROBENZENE	0.0011	0.0050	0.0011	U
1,2-DIBROMO-3-CHLOROPROPANE	0.0019	0.0050	0.0019	U
1,2-DICHLOROPROPANE	0.0013	0.0050	0.0013	U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.0015	0.0050	0.0015	U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	0.00071	0.0050	0.00071	U
1,3-DICHLOROBENZENE	0.0010	0.0050	0.0010	U
1,3-DICHLOROPROPANE	0.00028	0.0050	0.00028	U
1,4-DICHLOROBENZENE	0.0011	0.0050	0.0011	U
1-CHLOROHXANE	0.00094	0.0050	0.00094	U
2,2-DICHLOROPROPANE	0.0011	0.0050	0.0011	U
2-CHLOROTOLUENE	0.00098	0.0050	0.00098	U
4-CHLOROTOLUENE	0.00098	0.0050	0.00098	U
BENZENE	0.00078	0.0050	0.00078	U

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RESULTS

000212

453 180

Analytical Method: B260-A98

AAB #: A9B00588

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: S8-119-01

Lab Sample ID: A8477204

Matrix: SOIL

% Solids: 82.5

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
BROMOBENZENE	0.00090	0.0050	0.00090	U
BROMOCHLOROMETHANE	0.0010	0.0050	0.0010	U
BROMODICHLOROMETHANE	0.0012	0.0050	0.0012	U
BROMOFORM	0.0017	0.0050	0.0017	U
BROMOMETHANE	0.0018	0.0050	0.0018	U
CARBON TETRACHLORIDE	0.00087	0.0050	0.00087	U
CHLOROBENZENE	0.0013	0.0050	0.0013	U
CHLOROETHANE	0.0015	0.0050	0.0015	U
CHLOROFORM	0.00092	0.0050	0.00092	U
CHLOROMETHANE	0.0012	0.0050	0.0012	U
cis-1,2-DICHLOROETHYLENE	0.00086	0.0050	0.00086	U
cis-1,3-DICHLOROPROPENE	0.00081	0.0050	0.00081	U
DIBROMOCHLOROMETHANE	0.0014	0.0050	0.0014	U
DIBROMOMETHANE	0.0014	0.0050	0.0014	U
DICHLORODIFLUOROMETHANE	0.0014	0.0050	0.0014	U
ETHYLBENZENE	0.0012	0.0050	0.0012	U
HEXACHLOROBUTADIENE	0.0011	0.0050	0.0011	U
ISOPROPYLBENZENE (CUMENE)	0.00085	0.0050	0.00085	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.0022	0.0050	0.0022	U
METHYLENE CHLORIDE	0.0010	0.0050	0.0010	U
n-BUTYLBENZENE	0.00082	0.0050	0.00082	U
n-PROPYLBENZENE	0.00070	0.0050	0.00070	U
NAPHTHALENE	0.0016	0.0050	0.0016	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.0012	0.0050	0.0012	U
P-CYMENE (p-ISOPROPYLTOLUENE)	0.0011	0.0050	0.0011	U

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000213

453 181

Analytical Method: 8260-A98

AAB #: A9B00588

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: S8-119-01

Lab Sample ID: A8477204

Matrix: SOIL

% Solids: 82.5

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
P-XYLENE (1,4-DIMETHYLBENZENE)	0.0022	0.0050	0.0022	U
SEC-BUTYLBENZENE	0.00080	0.0050	0.00080	U
STYRENE	0.0010	0.0050	0.0010	U
TRICHLOROETHYLENE (TCE)	0.00078	0.0050	0.00078	U
t-BUTYLBENZENE	0.00086	0.0050	0.00086	U
TETRACHLOROETHYLENE (PCE)	0.00078	0.0050	0.00078	U
TOLUENE	0.0013	0.0050	0.0013	U
trans-1,2-DICHLOROETHENE	0.00074	0.0050	0.00074	U
trans-1,3-DICHLOROPROPENE	0.0017	0.0050	0.0017	U
TRICHLOROFLUOROMETHANE	0.0019	0.0050	0.0019	U
VINYL CHLORIDE	0.0012	0.0050	0.0012	U

Comments:

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AFCEE  
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RESULTS

000214

453 182

Analytical Method: B260-A98

AAB #: A9800588

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: SB-119-01 MS

Lab Sample ID: A8477204MS

Matrix: SOIL

% Solids: 82.5

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MOL	PQL	Concentration	Qualifier
1,1,1,2-TETRACHLOROETHANE	0.0012	0.0050	0.056	
1,1,1-TRICHLOROETHANE	0.0012	0.0050	0.058	
1,1,2,2-TETRACHLOROETHANE	0.0016	0.0050	0.042	
1,1,2-TRICHLOROETHANE	0.0013	0.0050	0.046	
1,1-DICHLOROETHANE	0.00095	0.0050	0.050	
1,1-DICHLOROETHENE	0.0012	0.0050	0.046	
1,1-DICHLOROPROPENE	0.0010	0.0050	0.050	
1,2,3-TRICHLOROBENZENE	0.0014	0.0050	0.035	
1,2,3-TRICHLOROPROPANE	0.0016	0.0050	0.043	
1,2,4-TRICHLOROBENZENE	0.0015	0.0050	0.037	
1,2,4-TRIMETHYLBENZENE	0.00072	0.0050	0.051	
1,2-DICHLOROETHANE	0.0013	0.0050	0.050	
1,2-DICHLOROBENZENE	0.0011	0.0050	0.045	
1,2-DIBROMO-3-CHLOROPROPANE	0.0019	0.0050	0.043	
1,2-DICHLOROPROPANE	0.0013	0.0050	0.045	
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.0015	0.0050	0.042	
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	0.00073	0.0050	0.054	
1,3-DICHLOROBENZENE	0.0010	0.0050	0.049	
1,3-DICHLOROPROPANE	0.00029	0.0050	0.045	
1,4-DICHLOROBENZENE	0.0011	0.0050	0.046	
1-CHLOROHEXANE	0.00095	0.0050	0.00095	U
2,2-DICHLOROPROPANE	0.0012	0.0050	0.051	
2-CHLOROTOLUENE	0.0010	0.0050	0.049	
4-CHLOROTOLUENE	0.0010	0.0050	0.050	
BENZENE	0.00079	0.0050	0.046	



453 183

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RESULTSAnalytical Method: B260-A98AAB #: A9800588Lab Name: STL BuffaloContract #: F4616249SD80Field Sample ID: SB-119-01 MSLab Sample ID: A8477204MSMatrix: SOIL% Solids: 82.5Dilution: 1.00Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
BROMOBENZENE	0.00092	0.0050	0.045	
BROMOCHLOROMETHANE	0.0010	0.0050	0.035	
BROMODICHLOROMETHANE	0.0013	0.0050	0.050	
BROMOFORM	0.0018	0.0050	0.043	
BROMOMETHANE	0.0018	0.0050	0.046	
CARBON TETRACHLORIDE	0.00089	0.0050	0.060	
CHLOROBENZENE	0.0014	0.0050	0.049	
CHLOROETHANE	0.0016	0.0050	0.052	
CHLOROFORM	0.00094	0.0050	0.053	
CHLOROMETHANE	0.0013	0.0050	0.050	
cis-1,2-DICHLOROETHYLENE	0.00088	0.0050	0.043	
cis-1,3-DICHLOROPROPENE	0.00082	0.0050	0.041	
DIBROMOCHLOROMETHANE	0.0014	0.0050	0.051	
DIBROMOMETHANE	0.0014	0.0050	0.040	
DICHLORODIFLUOROMETHANE	0.0014	0.0050	0.065	
ETHYLBENZENE	0.0013	0.0050	0.058	
HEXACHLOROBUTADIENE	0.0011	0.0050	0.053	
ISOPROPYLBENZENE (CUMENE)	0.00086	0.0050	0.052	
M-XYLENE (1,3-DIMETHYLBENZENE)	0.0022	0.0050	0.11	1
METHYLENE CHLORIDE	0.0010	0.0050	0.038	
n-BUTYLBENZENE	0.00083	0.0050	0.048	
n-PROPYLBENZENE	0.00071	0.0050	0.055	
NAPHTHALENE	0.0017	0.0050	0.028	
O-XYLENE (1,2-DIMETHYLBENZENE)	0.0012	0.0050	0.052	
P-CYMENE (p-ISOPROPYLTOLUENE)	0.0011	0.0050	0.055	

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RESULTS

000216  
453 184

Analytical Method: B260-A98

AAB #: A9800588

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: SB-119-01 MS

Lab Sample ID: A8477204MS

Matrix: SOIL

% Solids: 82.5

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
P-XYLENE (1,4-DIMETHYLBENZENE)	0.0022	0.0050	0.0022	1U
SEC-BUTYLBENZENE	0.00082	0.0050	0.056	
STYRENE	0.0010	0.0050	0.048	
TRICHLOROETHYLENE (TCE)	0.00080	0.0050	0.048	
t-BUTYLBENZENE	0.00087	0.0050	0.052	
TETRACHLOROETHYLENE(PCE)	0.00080	0.0050	0.054	
TOLUENE	0.0014	0.0050	0.051	
trans-1,2-DICHLOROETHENE	0.00076	0.0050	0.046	
trans-1,3-DICHLOROPROPENE	0.0017	0.0050	0.047	
TRICHLOROFLUOROMETHANE	0.0019	0.0050	0.060	
VINYL CHLORIDE	0.0012	0.0050	0.051	

Comments:

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Analytical Method: B260-A98AAB #: A9800588Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: SB-119-01 S0Lab Sample ID: A8477204SDMatrix: SOIL% Solids: 82.5Dilution: 1.00Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,1,1,2-TETRACHLOROETHANE	0.0011	0.0050	0.052	
1,1,1-TRICHLOROETHANE	0.0011	0.0050	0.057	
1,1,2,2-TETRACHLOROETHANE	0.0015	0.0050	0.040	
1,1,2-TRICHLOROETHANE	0.0013	0.0050	0.046	
1,1-DICHLOROETHANE	0.00092	0.0050	0.050	
1,1-DICHLOROETHENE	0.0012	0.0050	0.048	
1,1-DICHLOROPROPENE	0.00098	0.0050	0.052	
1,2,3-TRICHLOROBENZENE	0.0013	0.0050	0.037	
1,2,3-TRICHLOROPROPANE	0.0016	0.0050	0.043	
1,2,4-TRICHLOROBENZENE	0.0014	0.0050	0.038	
1,2,4-TRIMETHYLBENZENE	0.00070	0.0050	0.050	
1,2-DICHLOROETHANE	0.0013	0.0050	0.049	
1,2-DICHLOROBENZENE	0.0011	0.0050	0.044	
1,2-DIBROMO-3-CHLOROPROPANE	0.0019	0.0050	0.043	
1,2-DICHLOROPROPANE	0.0013	0.0050	0.046	
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.0015	0.0050	0.042	
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	0.00071	0.0050	0.051	
1,3-DICHLOROBENZENE	0.00099	0.0050	0.047	
1,3-DICHLOROPROPANE	0.00028	0.0050	0.047	
1,4-DICHLOROBENZENE	0.0011	0.0050	0.044	
1-CHLOROHEXANE	0.00093	0.0050	0.00093	U
2,2-DICHLOROPROPANE	0.0011	0.0050	0.051	
2-CHLOROTOLUENE	0.00098	0.0050	0.049	
4-CHLOROTOLUENE	0.00098	0.0050	0.047	
BENZENE	0.00077	0.0050	0.043	

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000218  
453 186

Analytical Method: 8260-A98

AAB #: A9800588

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: SB-119-01 SD

Lab Sample ID: A8477204SD

Matrix: SOIL

% Solids: 82.5

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
BROMOBENZENE	0.00089	0.0050	0.043	
BROMOCHLOROMETHANE	0.0010	0.0050	0.037	
BROMODICHLOROMETHANE	0.0012	0.0050	0.051	
BROMOFORM	0.0017	0.0050	0.045	
BROMOMETHANE	0.0018	0.0050	0.046	
CARBON TETRACHLORIDE	0.00087	0.0050	0.060	
CHLOROBENZENE	0.0013	0.0050	0.048	
CHLOROETHANE	0.0015	0.0050	0.054	
CHLOROFORM	0.00092	0.0050	0.054	
CHLOROMETHANE	0.0012	0.0050	0.056	
cis-1,2-DICHLOROETHYLENE	0.00086	0.0050	0.043	
cis-1,3-DICHLOROPROPENE	0.00080	0.0050	0.044	
DIBROMOCHLOROMETHANE	0.0014	0.0050	0.050	
DIBROMOMETHANE	0.0014	0.0050	0.042	
DICHLORODIFLUOROMETHANE	0.0014	0.0050	0.067	
ETHYLBENZENE	0.0012	0.0050	0.052	
HEXACHLOROBUTADIENE	0.0011	0.0050	0.046	
ISOPROPYLBENZENE (CUMENE)	0.00084	0.0050	0.052	
M-XYLENE (1,3-DIMETHYLBENZENE)	0.0022	0.0050	0.10	1
METHYLENE CHLORIDE	0.0010	0.0050	0.039	
n-BUTYLBENZENE	0.00081	0.0050	0.048	
n-PROPYLBENZENE	0.00069	0.0050	0.052	
NAPHTHALENE	0.0016	0.0050	0.033	
O-XYLENE (1,2-DIMETHYLBENZENE)	0.0012	0.0050	0.049	
P-CYME (p-ISOPROPYLTOLUENE)	0.0011	0.0050	0.053	

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000219

453 187

Analytical Method: 8260-A98

AAB #: A9800588

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: S8-119-01 SD

Lab Sample ID: A8477204SD

Matrix: SOIL

% Solids: 82.5

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
P-XYLENE (1,4-DIMETHYLBENZENE)	0.0022	0.0050	0.0022	1U
SEC-BUTYLBENZENE	0.00080	0.0050	0.054	
STYRENE	0.0010	0.0050	0.045	
TRICHLOROETHYLENE (TCE)	0.00078	0.0050	0.049	
t-BUTYLBENZENE	0.00085	0.0050	0.049	
TETRACHLOROETHYLENE(PCE)	0.00078	0.0050	0.050	
TOLUENE	0.0013	0.0050	0.048	
trans-1,2-DICHLOROETHENE	0.00074	0.0050	0.046	
trans-1,3-DICHLOROPROPENE	0.0017	0.0050	0.048	
TRICHLOROFLUOROMETHANE	0.0019	0.0050	0.059	
VINYL CHLORIDE	0.0012	0.0050	0.056	

Comments:

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RESULTS

000220

453 188

Analytical Method: 8260-A98

AAB #: A9800588

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: S8-119-02

Lab Sample ID: A8477205

Matrix: SOIL

% Solids: 87.4

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,1,1,2-TETRACHLOROETHANE	0.0011	0.0050	0.0011	U
1,1,1-TRICHLOROETHANE	0.0011	0.0050	0.0011	U
1,1,2,2-TETRACHLOROETHANE	0.0015	0.0050	0.0015	U
1,1,2-TRICHLOROETHANE	0.0012	0.0050	0.0012	U
1,1-DICHLOROETHANE	0.00088	0.0050	0.00088	U
1,1-DICHLOROETHENE	0.0011	0.0050	0.0011	U
1,1-DICHLOROPROPENE	0.00093	0.0050	0.00093	U
1,2,3-TRICHLOROBENZENE	0.0013	0.0050	0.0013	U
1,2,3-TRICHLOROPROPANE	0.0015	0.0050	0.0015	U
1,2,4-TRICHLOROBENZENE	0.0014	0.0050	0.0014	U
1,2,4-TRIMETHYLBENZENE	0.00067	0.0050	0.00067	U
1,2-DICHLOROETHANE	0.0012	0.0050	0.0012	U
1,2-DICHLOROBENZENE	0.0010	0.0050	0.0010	U
1,2-DIBROMO-3-CHLOROPROPANE	0.0018	0.0050	0.0018	U
1,2-DICHLOROPROPANE	0.0012	0.0050	0.0012	U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.0014	0.0050	0.0014	U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	0.00067	0.0050	0.00067	U
1,3-DICHLOROBENZENE	0.00094	0.0050	0.00094	U
1,3-DICHLOROPROPANE	0.00026	0.0050	0.00026	U
1,4-DICHLOROBENZENE	0.0010	0.0050	0.0010	U
1-CHLOROHEXANE	0.00088	0.0050	0.00088	U
2,2-DICHLOROPROPANE	0.0011	0.0050	0.0011	U
2-CHLOROTOLUENE	0.00093	0.0050	0.00093	U
4-CHLOROTOLUENE	0.00093	0.0050	0.00093	U
BENZENE	0.00074	0.0050	0.00074	U

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RESULTS

000221

453 189

Analytical Method: B260-A98

AAB #: A9800588

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: SB-119-02

Lab Sample ID: A8477205

Matrix: SOIL

% Solids: 87.4

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
BROMOBENZENE	0.00085	0.0050	0.00085	U
BROMOCHLOROMETHANE	0.00096	0.0050	0.00096	U
BROMODICHLOROMETHANE	0.0012	0.0050	0.0012	U
BROMOFORM	0.0016	0.0050	0.0016	U
BROMOMETHANE	0.0017	0.0050	0.0017	U
CARBON TETRACHLORIDE	0.00082	0.0050	0.00082	U
CHLOROBENZENE	0.0013	0.0050	0.0013	U
CHLOROETHANE	0.0014	0.0050	0.0014	U
CHLOROFORM	0.00087	0.0050	0.00087	U
CHLOROMETHANE	0.0012	0.0050	0.0012	U
cis-1,2-DICHLOROETHYLENE	0.00082	0.0050	0.00082	U
cis-1,3-DICHLOROPROPENE	0.00076	0.0050	0.00076	U
DIBROMOCHLOROMETHANE	0.0013	0.0050	0.0013	U
DIBROMOMETHANE	0.0013	0.0050	0.0013	U
DICHLORODIFLUOROMETHANE	0.0013	0.0050	0.0013	U
ETHYLBENZENE	0.0012	0.0050	0.0012	U
HEXACHLOROBUTADIENE	0.0010	0.0050	0.0010	U
ISOPROPYLBENZENE (CUMENE)	0.00080	0.0050	0.00080	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.0020	0.0050	0.0020	U
METHYLENE CHLORIDE	0.00096	0.0050	0.00096	U
n-BUTYLBENZENE	0.00077	0.0050	0.00077	U
n-PROPYLBENZENE	0.00066	0.0050	0.00066	U
NAPHTHALENE	0.0016	0.0050	0.0016	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.0011	0.0050	0.0011	U
P-CYME (p-ISOPROPYLTOLUENE)	0.0010	0.0050	0.0010	U

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
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000222

453 190

Analytical Method: 8260-A98

AAS #: A9800588

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: SB-119-02

Lab Sample ID: A8477205

Matrix: SOIL

% Solids: 87.4

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
P-XYLENE (1,4-DIMETHYLBENZENE)	0.0020	0.0050	0.0020	U
SEC-BUTYLBENZENE	0.00076	0.0050	0.00076	U
STYRENE	0.00097	0.0050	0.00097	U
TRICHLOROETHYLENE (TCE)	0.00074	0.0050	0.00074	U
t-BUTYLBENZENE	0.00081	0.0050	0.00081	U
TETRACHLOROETHYLENE (PCE)	0.00074	0.0050	0.00074	U
TOLUENE	0.0012	0.0050	0.0012	U
trans-1,2-DICHLOROETHENE	0.00070	0.0050	0.00070	U
trans-1,3-DICHLOROPROPENE	0.0016	0.0050	0.0016	U
TRICHLOROFLUOROMETHANE	0.0018	0.0050	0.0018	U
VINYL CHLORIDE	0.0011	0.0050	0.0011	U

Comments:

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AFCEE  
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000223

453 191  
Analytical Method: 8260-A98

Lab Name: STL Buffalo

Field Sample ID: S8-120-01

% Solids: 84.5

Date Received: 26-Oct-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

AAB #: A9800588

Contract #: F46162495080

Matrix: SOIL

Dilution: 1.00

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98

Analyte	MDL	PQL	Concentration	Qualifier
1,1,1,2-TETRACHLOROETHANE	0.0011	0.0050	0.0011	U
1,1,1-TRICHLOROETHANE	0.0011	0.0050	0.0011	U
1,1,2,2-TETRACHLOROETHANE	0.0015	0.0050	0.0015	U
1,1,2-TRICHLOROETHANE	0.0013	0.0050	0.0013	U
1,1-DICHLOROETHANE	0.00091	0.0050	0.00091	U
1,1-DICHLOROETHENE	0.0012	0.0050	0.0012	U
1,1-DICHLOROPROPENE	0.00096	0.0050	0.00096	U
1,2,3-TRICHLOROBENZENE	0.0013	0.0050	0.0013	U
1,2,3-TRICHLOROPROPANE	0.0015	0.0050	0.0015	U
1,2,4-TRICHLOROBENZENE	0.0014	0.0050	0.0014	U
1,2,4-TRIMETHYLBENZENE	0.00070	0.0050	0.00070	U
1,2-DICHLOROETHANE	0.0013	0.0050	0.0013	U
1,2-DICHLOROBENZENE	0.0011	0.0050	0.0011	U
1,2-DIBROMO-3-CHLOROPROPANE	0.0018	0.0050	0.0018	U
1,2-DICHLOROPROPANE	0.0013	0.0050	0.0013	U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.0015	0.0050	0.0015	U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	0.00070	0.0050	0.00070	U
1,3-DICHLOROBENZENE	0.00098	0.0050	0.00098	U
1,3-DICHLOROPROPANE	0.00028	0.0050	0.00028	U
1,4-DICHLOROBENZENE	0.0010	0.0050	0.0010	U
1-CHLOROHEXANE	0.00092	0.0050	0.00092	U
2,2-DICHLOROPROPANE	0.0011	0.0050	0.0011	U
2-CHLOROTOLUENE	0.00096	0.0050	0.00096	U
4-CHLOROTOLUENE	0.00096	0.0050	0.00096	U
BENZENE	0.00076	0.0050	0.00076	U

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000224

453 192

Analytical Method: 8260-A98

AAB #: A9800588

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: SB-120-01

Lab Sample ID: A8477206

Matrix: SOIL

% Solids: 84.5

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
BROMOBENZENE	0.00088	0.0050	0.00088	U
BROMOCHLOROMETHANE	0.0010	0.0050	0.0010	U
BROMODICHLOROMETHANE	0.0012	0.0050	0.0012	U
BROMOFORM	0.0017	0.0050	0.0017	U
BROMOMETHANE	0.0018	0.0050	0.0018	U
CARBON TETRACHLORIDE	0.00086	0.0050	0.00086	U
CHLOROBENZENE	0.0013	0.0050	0.0013	U
CHLOROETHANE	0.0015	0.0050	0.0015	U
CHLOROFORM	0.00091	0.0050	0.00091	U
CHLOROMETHANE	0.0012	0.0050	0.0012	U
cis-1,2-DICHLOROETHYLENE	0.00085	0.0050	0.00085	U
cis-1,3-DICHLOROPROPENE	0.00080	0.0050	0.00080	U
DIBROMOCHLOROMETHANE	0.0014	0.0050	0.0014	U
DIBROMOMETHANE	0.0014	0.0050	0.0014	U
DICHLORODIFLUOROMETHANE	0.0013	0.0050	0.0013	U
ETHYLBENZENE	0.0012	0.0050	0.0012	U
HEXACHLOROBUTADIENE	0.0011	0.0050	0.0011	U
ISOPROPYLBENZENE (CUMENE)	0.00083	0.0050	0.00083	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.0021	0.0050	0.0021	1U
METHYLENE CHLORIDE	0.0010	0.0050	0.0027	F
n-BUTYLBENZENE	0.00080	0.0050	0.00080	U
n-PROPYLBENZENE	0.00068	0.0050	0.00068	U
NAPHTHALENE	0.0016	0.0050	0.0016	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.0012	0.0050	0.0012	U
P-CYME (p-ISOPROPYLTOLUENE)	0.0010	0.0050	0.0010	U

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ORGANIC ANALYSES DATA SHEET 2  
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000225

Analytical Method: 8260-A98AAB #: A9800588Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: SB-120-01Lab Sample ID: A8477206Matrix: SOIL% Solids: 84.5Dilution: 1.00Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
P-XYLENE (1,4-DIMETHYLBENZENE)	0.0021	0.0050	0.0021	1U
SEC-BUTYLBENZENE	0.00079	0.0050	0.00079	U
STYRENE	0.0010	0.0050	0.0010	U
TRICHLOROETHYLENE (TCE)	0.00077	0.0050	0.00077	U
t-BUTYLBENZENE	0.00084	0.0050	0.00084	U
TETRACHLOROETHYLENE(PCE)	0.00077	0.0050	0.00077	U
TOLUENE	0.0013	0.0050	0.0013	U
trans-1,2-DICHLOROETHENE	0.00073	0.0050	0.00073	U
trans-1,3-DICHLOROPROPENE	0.0016	0.0050	0.0016	U
TRICHLOROFLUOROMETHANE	0.0019	0.0050	0.0019	U
VINYL CHLORIDE	0.0012	0.0050	0.0012	U

Comments:

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
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000226

453 194

Analytical Method: 8260-A98

AAB #: A9800588

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: Matrix Spike Blank      Lab Sample ID: A980058802

Matrix: SOIL

% Solids: 100.0

Dilution: 1.00

Date Received: 5-Nov-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
1,1,1,2-TETRACHLOROETHANE	0.00098	0.0050	0.057	
1,1,1-TRICHLOROETHANE	0.00097	0.0050	0.060	
1,1,2,2-TETRACHLOROETHANE	0.0013	0.0050	0.053	
1,1,2-TRICHLOROETHANE	0.0011	0.0050	0.056	
1,1-DICHLOROETHANE	0.00080	0.0050	0.056	
1,1-DICHLOROETHENE	0.0010	0.0050	0.055	
1,1-DICHLOROPROPENE	0.00084	0.0050	0.052	
1,2,3-TRICHLOROBENZENE	0.0012	0.0050	0.049	
1,2,3-TRICHLOROPROPANE	0.0013	0.0050	0.056	
1,2,4-TRICHLOROBENZENE	0.0012	0.0050	0.050	
1,2,4-TRIMETHYLBENZENE	0.00061	0.0050	0.056	
1,2-DICHLOROETHANE	0.0011	0.0050	0.062	
1,2-DICHLOROBENZENE	0.00095	0.0050	0.054	
1,2-DIBROMO-3-CHLOROPROPANE	0.0016	0.0050	0.060	
1,2-DICHLOROPROPANE	0.0011	0.0050	0.052	
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.0013	0.0050	0.052	
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	0.00061	0.0050	0.057	
1,3-DICHLOROBENZENE	0.00085	0.0050	0.054	
1,3-DICHLOROPROPANE	0.00024	0.0050	0.057	
1,4-DICHLOROBENZENE	0.00091	0.0050	0.051	
1-CHLOROHEXANE	0.00080	0.0050	0.00080	U
2,2-DICHLOROPROPANE	0.00098	0.0050	0.057	
2-CHLOROTOLUENE	0.00084	0.0050	0.055	
4-CHLOROTOLUENE	0.00084	0.0050	0.055	
BENZENE	0.00067	0.0050	0.050	

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453 195

Analytical Method: B260-A98

AAB #: A9800588

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: Matrix Spike Blank

Lab Sample ID: A980058802

Matrix: SOIL

% Solids: 100.0

Dilution: 1.00

Date Received: 5-Nov-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
BROMOBENZENE	0.00077	0.0050	0.052	
BROMOCHLOROMETHANE	0.00087	0.0050	0.049	
BROMODICHLOROMETHANE	0.0011	0.0050	0.057	
BROMOFORM	0.0015	0.0050	0.058	
BROMOMETHANE	0.0015	0.0050	0.051	
CARBON TETRACHLORIDE	0.00075	0.0050	0.060	
CHLOROBENZENE	0.0011	0.0050	0.051	
CHLOROETHANE	0.0013	0.0050	0.062	
CHLOROFORM	0.00079	0.0050	0.057	
CHLOROMETHANE	0.0011	0.0050	0.064	
cis-1,2-DICHLOROETHYLENE	0.00074	0.0050	0.049	
cis-1,3-DICHLOROPROPENE	0.00069	0.0050	0.053	
DIBROMOCHLOROMETHANE	0.0012	0.0050	0.058	
DIBROMOMETHANE	0.0012	0.0050	0.054	
DICHLORODIFLUOROMETHANE	0.0012	0.0050	0.081	
ETHYLBENZENE	0.0011	0.0050	0.058	
HEXACHLOROBUTADIENE	0.00096	0.0050	0.058	
ISOPROPYLBENZENE (CUMENE)	0.00072	0.0050	0.056	
M-XYLENE (1,3-DIMETHYLBENZENE)	0.0019	0.0050	0.12	1
METHYLENE CHLORIDE	0.00088	0.0050	0.052	
n-BUTYLBENZENE	0.00070	0.0050	0.055	
n-PROPYLBENZENE	0.00060	0.0050	0.058	
NAPHTHALENE	0.0014	0.0050	0.042	
O-XYLENE (1,2-DIMETHYLBENZENE)	0.0010	0.0050	0.054	
P-CYME (p-ISOPROPYLTOLUENE)	0.00092	0.0050	0.058	

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Analytical Method: 8260-A98

AAB #: A9800588

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: Matrix Spike Blank Lab Sample ID: A980058802

Matrix: SOIL

% Solids: 100.0

Dilution: 1.00

Date Received: 5-Nov-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
P-XYLENE (1,4-DIMETHYLBENZENE)	0.0019	0.0050	0.0019	1U
SEC-BUTYLBENZENE	0.00068	0.0050	0.060	
STYRENE	0.00088	0.0050	0.052	
TRICHLOROETHYLENE (TCE)	0.00067	0.0050	0.050	
t-BUTYLBENZENE	0.00073	0.0050	0.055	
TETRACHLOROETHYLENE(PCE)	0.00067	0.0050	0.054	
TOLUENE	0.0011	0.0050	0.053	
trans-1,2-DICHLOROETHENE	0.00063	0.0050	0.048	
trans-1,3-DICHLOROPROPENE	0.0014	0.0050	0.058	
TRICHLOROFLUOROMETHANE	0.0016	0.0050	0.067	
VINYL CHLORIDE	0.0010	0.0050	0.063	

Comments:

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Analytical Method: 8081-A98AAB #: A8B08986Lab Name: Recra LabNetContract #: F46162495D80Base/Command: NAS Ft Worth/Offsite WeapPrime Contractor: The Environmental Company

## Field Sample ID

## Lab Sample ID

SB-116-01A8477201SB-117-01A8477202SB-118-01A8477203SB-119-01A8477204SB-119-01 MSA8477204MSSB-119-01 SDA8477204SDSB-119-02A8477205SB-120-01A8477206

Comments:

See Case Narrative

I certify this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: K E KasperekName: Kenneth E. KasperekDate: 1/26/99Title: Laboratory Director

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453 198

Analytical Method: 8081-A98

AAB #: A8808986

Lab Name: Recra LabNet

Contract #: F46162495080

Field Sample ID: S8-116-01

Lab Sample ID: A8477201

Matrix: SOIL

% Solids: 89.6

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 5-Nov-98

Date Analyzed: 25-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	0.0014	0.0190	0.0014	U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	0.0016	0.0330	0.0016	U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	0.0066	0.0110	0.0066	U
GAMMA BHC (LINDANE)	0.0016	0.020	0.0016	U
ALPHA-CHLORDANE	0.0084	0.040	0.0084	U
GAMMA-CHLORDANE	0.0034	0.040	0.0034	U
p,p'-DDD	0.0018	0.0420	0.0018	U
p,p'-DDE	0.0030	0.0250	0.0030	U
p,p'-DDT	0.0034	0.0360	0.0034	U
ALDRIN	0.0018	0.0220	0.0018	U
DIELDRIN	0.0018	0.0350	0.0018	U
ALPHA ENDOSULFAN	0.0084	0.0210	0.0084	U
BETA ENDOSULFAN	0.0018	0.0240	0.0018	U
ENDOSULFAN SULFATE	0.0023	0.0360	0.0023	U
ENDRIN	0.0016	0.0360	0.0016	U
ENDRIN ALDEHYDE	0.0050	0.0320	0.0050	U
HEPTACHLOR	0.0030	0.020	0.0030	U
HEPTACHLOR EPOXIDE	0.0020	0.0210	0.0020	U
METHOXYCHLOR	0.0023	0.0570	0.0023	U
TOXAPHENE	0.020	0.570	0.020	U

Comments:



453 199

Analytical Method: 8081-A98

AAB #: A8808986

Lab Name: Recra LabWet

Contract #: F46162495D80

Field Sample ID: SB-117-01

Lab Sample ID: A8477202

Matrix: SOIL

% Solids: 89.4

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 5-Nov-98

Date Analyzed: 26-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	0.0014	0.0190	0.0014	U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	0.0016	0.0330	0.0016	U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	0.0067	0.0110	0.0067	U
GAMMA BHC (LINDANE)	0.0016	0.020	0.0016	U
ALPHA-CHLORDANE	0.0086	0.040	0.0086	U
GAMMA-CHLORDANE	0.0035	0.040	0.0035	U
p,p'-DDD	0.0018	0.0420	0.0018	U
p,p'-DDE	0.0030	0.0250	0.0030	U
p,p'-DDT	0.0035	0.0360	0.0035	U
ALDRIN	0.0018	0.0220	0.0018	U
DIELDRIN	0.0018	0.0350	0.0018	U
ALPHA ENDOSULFAN	0.0086	0.0210	0.0086	U
BETA ENDOSULFAN	0.0018	0.0240	0.0018	U
ENDOSULFAN SULFATE	0.0023	0.0360	0.0023	U
ENDRIN	0.0016	0.0360	0.0016	U
ENDRIN ALDEHYDE	0.0051	0.0320	0.0051	U
HEPTACHLOR	0.0030	0.020	0.0030	U
HEPTACHLOR EPOXIDE	0.0021	0.0210	0.0021	U
METHOXYCHLOR	0.0023	0.0570	0.0023	U
TOXAPHENE	0.020	0.570	0.020	U

Comments:

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453 200

Analytical Method: 8081-A98

AAB #: A8808986

Lab Name: Recre LabWet

Contract #: F46162495080

Field Sample ID: S8-118-01

Lab Sample ID: A8477203

Matrix: SOIL

% Solids: 86.2

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 5-Nov-98

Date Analyzed: 26-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	0.0014	0.0190	0.0014	U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	0.0016	0.0330	0.0016	U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	0.0068	0.0110	0.0068	U
GAMMA BHC (LINDANE)	0.0016	0.020	0.0016	U
ALPHA-CHLORDANE	0.0087	0.040	0.0087	U
GAMMA-CHLORDANE	0.0035	0.040	0.0035	U
P,p'-DDD	0.0019	0.0420	0.0019	U
P,p'-DDE	0.0031	0.0250	0.0031	U
P,p'-DDT	0.0035	0.0360	0.0035	U
ALDRIN	0.0019	0.0220	0.0019	U
DIELDRIN	0.0019	0.0350	0.0019	U
ALPHA ENDOSULFAN	0.0087	0.0210	0.0087	U
BETA ENDOSULFAN	0.0019	0.0240	0.0019	U
ENDOSULFAN SULFATE	0.0024	0.0360	0.0024	U
ENDRIN	0.0016	0.0360	0.0016	U
ENDRIN ALDEHYDE	0.0052	0.0320	0.0052	U
HEPTACHLOR	0.0031	0.020	0.0031	U
HEPTACHLOR EPOXIDE	0.0021	0.0210	0.0021	U
METHOXYCHLOR	0.0024	0.0570	0.0024	U
TOXAPHENE	0.020	0.570	0.020	U

Comments:

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

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453 201

Analytical Method: 8081-A98

AAB #: A8808986

Lab Name: Recre LabNet

Contract #: F46162495080

Field Sample ID: S8-119-01

Lab Sample ID: A8477204

Matrix: SOIL

% Solids: 87.7

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 5-Nov-98

Date Analyzed: 26-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	0.0014	0.0190	0.0014	U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	0.0017	0.0330	0.0017	U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	0.0069	0.0110	0.0069	U
GAMMA BHC (LINDANE)	0.0017	0.020	0.0017	U
ALPHA-CHLORDANE	0.0088	0.040	0.0088	U
GAMMA-CHLORDANE	0.0036	0.040	0.0036	U
p,p'-DDD	0.0019	0.0420	0.0019	U
p,p'-DDE	0.0031	0.0250	0.0031	U
p,p'-DDT	0.0036	0.0360	0.0036	U
ALDRIN	0.0019	0.0220	0.0019	U
DIELDRIN	0.0019	0.0350	0.0019	U
ALPHA ENDOSULFAN	0.0088	0.0210	0.0088	U
BETA ENDOSULFAN	0.0019	0.0240	0.0019	U
ENDOSULFAN SULFATE	0.0024	0.0360	0.0024	U
ENDRIN	0.0017	0.0360	0.0017	U
ENDRIN ALDEHYDE	0.0052	0.0320	0.0052	U
HEPTACHLOR	0.0031	0.020	0.0031	U
HEPTACHLOR EPOXIDE	0.0021	0.0210	0.0021	U
METHOXYCHLOR	0.0024	0.0570	0.0024	U
TOXAPHENE	0.021	0.570	0.021	U

Comments:

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

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453 202

Analytical Method: 8081-A98

AAB #: A8808986

Lab Name: Recra LabNet

Contract #: F46162495080

Field Sample ID: SB-119-01 MS

Lab Sample ID: A8477204MS

Matrix: SOIL

% Solids: 87.7

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 5-Nov-98

Date Analyzed: 26-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MOL	PQL	Concentration	Qualifier
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	0.0014	0.0190	0.035	
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	0.0017	0.0330	0.042	
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	0.0069	0.0110	0.042	
GAMMA BHC (LINDANE)	0.0017	0.020	0.038	
ALPHA-CHLORDANE	0.0088	0.040	0.043	
GAMMA-CHLORDANE	0.0036	0.040	0.036	F
p,p'-DDD	0.0019	0.0420	0.049	
p,p'-DDE	0.0031	0.0250	0.045	
p,p'-DDT	0.0036	0.0360	0.053	
ALDRIN	0.0019	0.0220	0.041	
DIELDRIN	0.0019	0.0350	0.042	
ALPHA ENDOSULFAN	0.0088	0.0210	0.042	
BETA ENDOSULFAN	0.0019	0.0240	0.044	
ENDOSULFAN SULFATE	0.0024	0.0360	0.044	
ENDRIN	0.0017	0.0360	0.045	
ENDRIN ALDEHYDE	0.0052	0.0320	0.037	
HEPTACHLOR	0.0031	0.020	0.038	
HEPTACHLOR EPOXIDE	0.0021	0.0210	0.041	
METHOXYCHLOR	0.0024	0.0570	0.051	F
TDXAPHENE	0.021	0.570	0.021	U

Comments:

AFCEE  
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453 273

Analytical Method: 8081-A98

AAB #: A8808986

Lab Name: Recre LabNet

Contract #: F46162495080

Field Sample ID: S8-119-01 SD

Lab Sample ID: A8477204SD

Matrix: SOIL

% Solids: 87.7

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 5-Nov-98

Date Analyzed: 26-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	0.0014	0.0190	0.040	
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	0.0017	0.0330	0.044	
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	0.0069	0.0110	0.044	
GAMMA BHC (LINDANE)	0.0017	0.020	0.041	
ALPHA-CHLORDANE	0.0088	0.040	0.044	
GAMMA-CHLORDANE	0.0036	0.040	0.038	F
p,p'-DDD	0.0019	0.0420	0.050	
p,p'-DDE	0.0031	0.0250	0.046	
p,p'-DDT	0.0036	0.0360	0.052	
ALDRIN	0.0019	0.0220	0.043	
DIELDRIN	0.0019	0.0350	0.044	
ALPHA ENDOSULFAN	0.0088	0.0210	0.044	
BETA ENDOSULFAN	0.0019	0.0240	0.046	
ENDOSULFAN SULFATE	0.0024	0.0360	0.046	
ENDRIN	0.0017	0.0360	0.046	
ENDRIN ALDEHYDE	0.0052	0.0320	0.042	
HEPTACHLOR	0.0031	0.020	0.041	
HEPTACHLOR EPOXIDE	0.0021	0.0210	0.043	
METHOXYCHLOR	0.0024	0.0570	0.053	F
TOXAPHENE	0.021	0.570	0.021	U

Comments:

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000023

453 204

Analytical Method: 8081-A98

AAB #: A8808986

Lab Name: Recra LabWet

Contract #: F46162495080

Field Sample ID: SB-119-02

Lab Sample ID: A8477205

Matrix: SOIL

% Solids: 89.8

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 5-Nov-98

Date Analyzed: 26-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	0.0014	0.0190	0.0014	U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	0.0016	0.0330	0.0016	U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	0.0066	0.0110	0.0066	U
GAMMA BHC (LINDANE)	0.0016	0.020	0.0016	U
ALPHA-CHLORDANE	0.0084	0.040	0.0084	U
GAMMA-CHLORDANE	0.0034	0.040	0.0034	U
P,P'-DDD	0.0018	0.0420	0.0018	U
P,P'-DDE	0.0030	0.0250	0.0030	U
P,P'-DDT	0.0034	0.0360	0.0034	U
ALDRIN	0.0018	0.0220	0.0018	U
DIELDRIN	0.0018	0.0350	0.0018	U
ALPHA ENDOSULFAN	0.0084	0.0210	0.0084	U
BETA ENDOSULFAN	0.0018	0.0240	0.0018	U
ENDOSULFAN SULFATE	0.0023	0.0360	0.0023	U
ENDRIN	0.0016	0.0360	0.0016	U
ENDRIN ALDEHYDE	0.0050	0.0320	0.0050	U
HEPTACHLOR	0.0030	0.020	0.0030	U
HEPTACHLOR EPOXIDE	0.0020	0.0210	0.0020	U
METHOXYCHLOR	0.0023	0.0570	0.0023	U
TOXAPHENE	0.020	0.570	0.020	U

Comments:

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000024

453 205  
Analytical Method: 8081-A98

AAB #: A8808986

Lab Name: Recre LabNet

Contract #: F46162495D80

Field Sample ID: S8-120-01

Lab Sample ID: A8477206

Matrix: SOIL

% Solids: 96.5

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 5-Nov-98

Date Analyzed: 26-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	0.0013	0.0190	0.0013	U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	0.0015	0.0330	0.0015	U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	0.0063	0.0110	0.0063	U
GAMMA BHC (LINDANE)	0.0015	0.020	0.0015	U
ALPHA-CHLORDANE	0.0080	0.040	0.0080	U
GAMMA-CHLORDANE	0.0032	0.040	0.0032	U
P,p'-DDD	0.0017	0.0420	0.0017	U
P,p'-DDE	0.0028	0.0250	0.0028	U
P,p'-DDT	0.0032	0.0360	0.0032	U
ALDRIN	0.0017	0.0220	0.0017	U
DIELDRIN	0.0017	0.0350	0.0017	U
ALPHA ENDOSULFAN	0.0080	0.0210	0.0080	U
BETA ENDOSULFAN	0.0017	0.0240	0.0017	U
ENDOSULFAN SULFATE	0.0022	0.0360	0.0022	U
ENDRIN	0.0015	0.0360	0.0015	U
ENDRIN ALDEHYDE	0.0048	0.0320	0.0048	U
HEPTACHLOR	0.0028	0.020	0.0028	U
HEPTACHLOR EPOXIDE	0.0019	0.0210	0.0019	U
METHOXYCHLOR	0.0022	0.0570	0.0022	U
TOXAPHENE	0.019	0.570	0.019	U

Comments:

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000025

453 206

Analytical Method: 8081-A98

AAB #: A8808986

Lab Name: Recra LabNet

Contract #: F46162495080

Field Sample ID: Matrix Spike Blank

Lab Sample ID: A880898601

Matrix: SOIL

% Solids: 100.0

Dilution: 1.00

Date Received: \_\_\_\_\_

Date Extracted: 5-Nov-98

Date Analyzed: 26-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	0.0012	0.0190	0.035	
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	0.0014	0.0330	0.038	
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	0.0060	0.0110	0.038	
GAMMA BHC (LINDANE)	0.0014	0.020	0.036	
ALPHA-CHLORDANE	0.0076	0.040	0.038	F
GAMMA-CHLORDANE	0.0031	0.040	0.036	F
p,p'-DDD	0.0016	0.0420	0.043	
p,p'-DDE	0.0027	0.0250	0.040	
p,p'-DDT	0.0031	0.0360	0.044	
ALDRIN	0.0016	0.0220	0.036	
DIELDRIN	0.0016	0.0350	0.038	
ALPHA ENDOSULFAN	0.0076	0.0210	0.038	
BETA ENDOSULFAN	0.0016	0.0240	0.040	
ENDOSULFAN SULFATE	0.0020	0.0360	0.040	
ENDRIN	0.0014	0.0360	0.040	
ENDRIN ALDEHYDE	0.0045	0.0320	0.034	
HEPTACHLOR	0.0027	0.020	0.036	
HEPTACHLOR EPOXIDE	0.0018	0.0210	0.037	
METHOXYCHLOR	0.0020	0.0570	0.046	F
TOXAPHENE	0.018	0.570	0.018	U

Comments:



453 207

AFCEE  
ORGANIC ANALYSES DATA PACKAGE

000056

Analytical Method: 8082AAB #: A8B08989Lab Name: Recra LabNetContract #: F46162495D80Base/Command: NAS Ft Worth/Offsite WeapPrime Contractor: The Environmental Company

## Field Sample ID

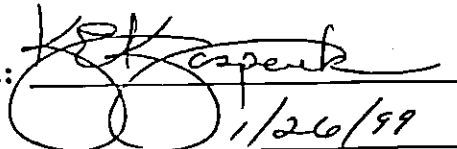
## Lab Sample ID

SB-116-01A8477201SB-117-01A8477202SB-118-01A8477203SB-119-01A8477204SB-119-01 MSA8477204MSSB-119-01 SDA8477204SDSB-119-02A8477205SB-120-01A8477206

## Comments:

See Case Narrative

I certify this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Name: Kenneth E. KasperekDate: 1/26/99Title: Laboratory Director

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

453 208 000057

Analytical Method: 8082

AAB #: A8808989

Lab Name: Recra LabNet

Contract #: F46162495080

Field Sample ID: SB-116-01

Lab Sample ID: A8477201

Matrix: SOIL

% Solids: 89.6

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 5-Nov-98

Date Analyzed: 6-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
PCB-1016 (AROCHLOR 1016)	0.0027	0.700	0.0027	U
PCB-1221 (AROCHLOR 1221)	0.0014	0.700	0.0014	U
PCB-1232 (AROCHLOR 1232)	0.0018	0.700	0.0018	U
PCB-1242 (AROCHLOR 1242)	0.013	0.700	0.013	U
PCB-1248 (AROCHLOR 1248)	0.0013	0.700	0.0013	U
PCB-1254 (AROCHLOR 1254)	0.0025	0.700	0.0025	U
PCB-1260 (AROCHLOR 1260)	0.0023	0.700	0.0023	U

Comments:

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453 2 9

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000058

Analytical Method: 8082AAB #: A8808989Lab Name: Recre LabNetContract #: F46162495080Field Sample ID: S8-117-01Lab Sample ID: A8477202Matrix: SOIL% Solids: 89.4Dilution: 1.00Date Received: 26-Oct-98Date Extracted: 5-Nov-98Date Analyzed: 6-Nov-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
PCB-1016 (AROCHLOR 1016)	0.0028	0.700	0.0028	U
PCB-1221 (AROCHLOR 1221)	0.0014	0.700	0.0014	U
PCB-1232 (AROCHLOR 1232)	0.0019	0.700	0.0019	U
PCB-1242 (AROCHLOR 1242)	0.013	0.700	0.013	U
PCB-1248 (AROCHLOR 1248)	0.0013	0.700	0.0013	U
PCB-1254 (AROCHLOR 1254)	0.0026	0.700	0.0026	U
PCB-1260 (AROCHLOR 1260)	0.0023	0.700	0.0023	U

Comments:

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000059

453 210

Analytical Method: 8082

AAB #: A8808989

Lab Name: Recre LabNet

Contract #: F46162495080

Field Sample ID: SB-118-01

Lab Sample ID: A8477203

Matrix: SOIL

% Solids: 86.2

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 5-Nov-98

Date Analyzed: 6-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
PCB-1016 (AROCHLOR 1016)	0.0029	0.700	0.0029	U
PCB-1221 (AROCHLOR 1221)	0.0015	0.700	0.0015	U
PCB-1232 (AROCHLOR 1232)	0.0020	0.700	0.0020	U
PCB-1242 (AROCHLOR 1242)	0.014	0.700	0.014	U
PCB-1248 (AROCHLOR 1248)	0.0014	0.700	0.0014	U
PCB-1254 (AROCHLOR 1254)	0.0026	0.700	0.0026	U
PCB-1260 (AROCHLOR 1260)	0.0024	0.700	0.0024	U

Comments:

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AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

453 211

000060

Analytical Method: 8082

AAB #: A8808989

Lab Name: Recra LabNet

Contract #: F46162495D80

Field Sample ID: SB-119-01

Lab Sample ID: A8477204

Matrix: SOIL

% Solids: 87.7

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 5-Nov-98

Date Analyzed: 6-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
PCB-1016 (AROCHLOR 1016)	0.0028	0.700	0.0028	U
PCB-1221 (AROCHLOR 1221)	0.0015	0.700	0.0015	U
PCB-1232 (AROCHLOR 1232)	0.0019	0.700	0.0019	U
PCB-1242 (AROCHLOR 1242)	0.014	0.700	0.014	U
PCB-1248 (AROCHLOR 1248)	0.0014	0.700	0.0014	U
PCB-1254 (AROCHLOR 1254)	0.0026	0.700	0.0026	U
PCB-1260 (AROCHLOR 1260)	0.0024	0.700	0.0024	U

Comments:

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

453 212000061

Analytical Method: 8082

AAB #: A8808989

Lab Name: Recra LabNet

Contract #: F46162495080

Field Sample ID: SB-119-01 MS

Lab Sample ID: A8477204MS

Matrix: SOIL

% Solids: 87.7

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 5-Nov-98

Date Analyzed: 6-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
PCB-1016 (AROCHLOR 1016)	0.0028	0.700	0.16	F
PCB-1221 (AROCHLOR 1221)	0.0014	0.700	0.0014	U
PCB-1232 (AROCHLOR 1232)	0.0019	0.700	0.0019	U
PCB-1242 (AROCHLOR 1242)	0.013	0.700	0.013	U
PCB-1248 (AROCHLOR 1248)	0.0013	0.700	0.0013	U
PCB-1254 (AROCHLOR 1254)	0.0026	0.700	0.0026	U
PCB-1260 (AROCHLOR 1260)	0.0023	0.700	0.15	F

Comments:

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

453 213

000062

Analytical Method: 8082

AAB #: A8808989

Lab Name: Recra LabNet

Contract #: F46162495D80

Field Sample ID: S8-119-01 SD

Lab Sample ID: A8477204SD

Matrix: SOIL

% Solids: 87.7

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 5-Nov-98

Date Analyzed: 6-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
PCB-1016 (AROCHLOR 1016)	0.0028	0.700	0.16	F
PCB-1221 (AROCHLOR 1221)	0.0015	0.700	0.0015	U
PCB-1232 (AROCHLOR 1232)	0.0019	0.700	0.0019	U
PCB-1242 (AROCHLOR 1242)	0.014	0.700	0.014	U
PCB-1248 (AROCHLOR 1248)	0.0014	0.700	0.0014	U
PCB-1254 (AROCHLOR 1254)	0.0026	0.700	0.0026	U
PCB-1260 (AROCHLOR 1260)	0.0024	0.700	0.15	F

Comments:

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

453 214

000063

Analytical Method: 8082

AAB #: A8808989

Lab Name: Recre LabNet

Contract #: F46162495080

Field Sample ID: SB-119-02

Lab Sample ID: A8477205

Matrix: SOIL

% Solids: 89.8

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 5-Nov-98

Date Analyzed: 6-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
PCB-1016 (AROCHLOR 1016)	0.0028	0.700	0.0028	U
PCB-1221 (AROCHLOR 1221)	0.0014	0.700	0.0014	U
PCB-1232 (AROCHLOR 1232)	0.0019	0.700	0.0019	U
PCB-1242 (AROCHLOR 1242)	0.013	0.700	0.013	U
PCB-1248 (AROCHLOR 1248)	0.0013	0.700	0.0013	U
PCB-1254 (AROCHLOR 1254)	0.0025	0.700	0.0025	U
PCB-1260 (AROCHLOR 1260)	0.0023	0.700	0.0023	U

Comments:

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AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000064

453 215

Analytical Method: 8082

AAB #: A8808989

Lab Name: Recra LabNet

Contract #: F46162495080

Field Sample ID: S8-120-01

Lab Sample ID: A8477206

Matrix: SOIL

% Solids: 96.5

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 5-Nov-98

Date Analyzed: 6-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
PCB-1016 (AROCHLOR 1016)	0.0025	0.700	0.0025	U
PCB-1221 (AROCHLOR 1221)	0.0013	0.700	0.0013	U
PCB-1232 (AROCHLOR 1232)	0.0017	0.700	0.0017	U
PCB-1242 (AROCHLOR 1242)	0.012	0.700	0.012	U
PCB-1248 (AROCHLOR 1248)	0.0012	0.700	0.0012	U
PCB-1254 (AROCHLOR 1254)	0.0023	0.700	0.0023	U
PCB-1260 (AROCHLOR 1260)	0.0021	0.700	0.0021	U

Comments:

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000065

453 216

Analytical Method: 8082

AAB #: A8808989

Lab Name: Recre LabNet

Contract #: F46162495080

Field Sample ID: Matrix Spike Blank Lab Sample ID: A880898901

Matrix: SOIL

% Solids: 100.0

Dilution: 1.00

Date Received: \_\_\_\_\_

Date Extracted: 5-Nov-98

Date Analyzed: 6-Nov-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
PCB-1016 (AROCHLOR 1016)	0.0024	0.700	0.14	F
PCB-1221 (AROCHLOR 1221)	0.0013	0.700	0.0013	U
PCB-1232 (AROCHLOR 1232)	0.0016	0.700	0.0016	U
PCB-1242 (AROCHLOR 1242)	0.012	0.700	0.012	U
PCB-1248 (AROCHLOR 1248)	0.0012	0.700	0.0012	U
PCB-1254 (AROCHLOR 1254)	0.0022	0.700	0.0022	U
PCB-1260 (AROCHLOR 1260)	0.0020	0.700	0.14	F

Comments:

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Analytical Method: 6010-A98AAB #: A8B08666Lab Name: STL BuffaloContract #: F46162495D80Base/Command: NAS Ft Worth/Offsite WeapPrime Contractor: The Environmental Com

## Field Sample ID

## Lab Sample ID

SB-116-01A8477201SB-117-01A8477202SB-118-01A8477203SB-119-01A8477204SB-119-01 MSA8477204MSSB-119-01 SDA8477204SDSB-119-02A8477205SB-120-01A8477206

## Comments:

See Case Narrative

I certify this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: K. E. KasperekName: Kenneth E. KasperekDate: 11/26/99Title: Laboratory Director

453 218

AAB #: A8808666

Analytical Method: 6010-A98Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: S8-116-01Lab Sample ID: A8477201Matrix: SOIL% Solids: 89.6Dilution: 1.00Date Received: 26-Oct-98Date Extracted: 28-Oct-98Date Analyzed: 31-Oct-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
ALUMINUM	5.4	5.0	4640	
ANTIMONY	0.89	1.0	0.89	U
ARSENIC	0.69	2.0	2.6	
BARIUM	0.11	0.500	24.0	
BERYLLIUM	0.11	0.300	0.39	
CADMIUM	0.071	0.100	0.071	U
CALCIUM	411	20.0	276000	
CHROMIUM	0.22	0.500	16.5	
COBALT	0.16	0.200	1.4	
COPPER	0.26	0.500	3.6	
IRON	7.6	5.0	5310	
LEAD	0.33	1.0	3.2	
MAGNESIUM	5.4	5.0	2110	
MANGANESE	0.11	0.500	117	
MOLYBDENUM	0.24	0.500	0.24	U
NICKEL	0.36	0.500	4.4	
POTASSIUM	10.8	10.0	1150	
SELENIUM	0.65	1.0	0.65	U
SILVER	0.32	0.200	0.32	U
SODIUM	53.8	100.0	733	
THALLIUM	0.59	2.0	0.59	U
VANADIUM	0.22	0.500	17.8	
ZINC	1.0	3.0	105	

Comments:

453 219

INORGANIC ANALYSES DATA SHEET 2  
RESULTSAnalytical Method: 6010-A98AAB #: A8808666Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: SB-117-01Lab Sample ID: A8477202Matrix: SOIL% Solids: 89.4Dilution: 1.00Date Received: 26-Oct-98Date Extracted: 28-Oct-98Date Analyzed: 31-Oct-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
ALUMINUM	5.5	5.0	11200	
ANTIMONY	0.92	1.0	0.92	U
ARSENIC	0.70	2.0	1.3	F
BARIUM	0.11	0.500	37.7	
BERYLLIUM	0.11	0.300	0.51	
CADMIUM	0.072	0.100	0.072	U
CALCIUM	421	20.0	259000	
CHROMIUM	0.22	0.500	22.1	
COBALT	0.16	0.200	2.8	
COPPER	0.26	0.500	2.4	
IRON	7.7	5.0	7380	
LEAD	0.34	1.0	6.4	
MAGNESIUM	5.5	5.0	2340	
MANGANESE	0.11	0.500	124	
MOLYBDENUM	0.24	0.500	0.24	U
NICKEL	0.36	0.500	6.8	
POTASSIUM	11.0	10.0	2020	
SELENIUM	0.66	1.0	0.66	U
SILVER	0.33	0.200	0.33	U
SODIUM	55.2	100.0	823	
THALLIUM	0.61	2.0	0.61	U
VANADIUM	0.22	0.500	26.4	
ZINC	1.1	3.0	21.3	

Comments:

453 220

000000

Analytical Method: 6010-A98AAB #: A8808666Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: SB-118-01Lab Sample ID: A8477203Matrix: SOIL% Solids: 86.2Dilution: 1.00Date Received: 26-Oct-98Date Extracted: 28-Oct-98Date Analyzed: 31-Oct-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
ALUMINUM	5.8	5.0	12200	
ANTIMONY	0.97	1.0	0.97	U
ARSENIC	0.74	2.0	1.1	F
BARIUM	0.12	0.500	43.1	
BERYLLIUM	0.12	0.300	0.54	
CADMIUM	0.076	0.100	0.076	U
CALCIUM	445	20.0	236000	
CHROMIUM	0.24	0.500	21.6	
COBALT	0.17	0.200	3.2	
COPPER	0.28	0.500	3.6	
IRON	8.2	5.0	8890	
LEAD	0.36	1.0	9.6	
MAGNESIUM	5.8	5.0	2640	
MANGANESE	0.12	0.500	196	
MOLYBDENUM	0.26	0.500	0.26	U
NICKEL	0.39	0.500	7.6	
POTASSIUM	11.7	10.0	2360	
SELENIUM	0.70	1.0	0.70	U
SILVER	0.35	0.200	0.35	U
SODIUM	58.4	100.0	819	
THALLIUM	0.64	2.0	0.64	U
VANADIUM	0.24	0.500	23.5	
ZINC	1.1	3.0	27.3	

Comments:

453 221

INORGANIC ANALYSIS DATA SHEET 2  
RESULTSAnalytical Method: 6010-A98AAB #: A8808666Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: S8-119-01Lab Sample ID: A8477204Matrix: SOIL% Solids: 87.7Dilution: 1.00Date Received: 26-Oct-98Date Extracted: 28-Oct-98Date Analyzed: 31-Oct-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
ALUMINUM	5.6	5.0	10700	
ANTIMONY	0.93	1.0	0.93	U
ARSENIC	0.71	2.0	1.3	F
BARIUM	0.11	0.500	42.1	
BERYLLIUM	0.11	0.300	0.46	
CADMIUM	0.073	0.100	0.073	U
CALCIUM	427	20.0	222000	
CHROMIUM	0.23	0.500	17.5	
COBALT	0.17	0.200	2.5	
COPPER	0.26	0.500	5.2	
IRON	7.8	5.0	8030	
LEAD	0.35	1.0	10.7	
MAGNESIUM	5.6	5.0	2060	
MANGANESE	0.11	0.500	150	
MOLYBDENUM	0.24	0.500	0.24	U
NICKEL	0.37	0.500	6.0	
POTASSIUM	11.2	10.0	2600	
SELENIUM	0.67	1.0	0.67	U
SILVER	0.33	0.200	0.33	U
SODIUM	55.9	100.0	1020	
THALLIUM	0.62	2.0	0.62	U
VANADIUM	0.23	0.500	16.5	
ZINC	1.1	3.0	27.8	

Comments:

INORGANIC ANALYSES DATA SHEET 2  
RESULTS

0004287  
433 222

Analytical Method: 6010-A98

AAB #: A8808666

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: S8-119-01 MS

Lab Sample ID: A8477204MS

Matrix: SOIL

% Solids: 87.7

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 28-Oct-98

Date Analyzed: 31-Oct-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
ANTIMONY	0.93	1.0	50.3	
ARSENIC	0.72	2.0	408	
BARIUM	0.11	0.500	456	
BERYLLIUM	0.11	0.300	10.2	
CADMIUM	0.074	0.100	5.0	
CHROMIUM	0.23	0.500	56.8	
COBALT	0.17	0.200	101	
COPPER	0.27	0.500	56.5	
LEAD	0.35	1.0	102	
MANGANESE	0.11	0.500	398	
MOLYBDENUM	0.25	0.500	2610	
NICKEL	0.37	0.500	101	
SELENIUM	0.67	1.0	384	
SILVER	0.33	0.200	8.8	
THALLIUM	0.62	2.0	385	
VANADIUM	0.23	0.500	116	
ZINC	1.1	3.0	120	

Comments:

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453 223 Analytical Method: 6010-A98Lab Name: STL BuffaloAAB #: A8808666Contract #: F46162495080Field Sample ID: SB-119-01 SDLab Sample ID: A8477204SDMatrix: SOIL% Solids: 87.7Dilution: 1.00Date Received: 26-Oct-98Date Extracted: 28-Oct-98Date Analyzed: 31-Oct-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MOL	PQL	Concentration	Qualifier
ANTIMONY	0.94	1.0	49.2	
ARSENIC	0.72	2.0	408	
BARIUM	0.11	0.500	451	
BERYLLIUM	0.11	0.300	10.4	
CADMIUM	0.074	0.100	4.2	
CHROMIUM	0.23	0.500	58.6	
COBALT	0.17	0.200	102	
COPPER	0.27	0.500	57.8	
LEAD	0.35	1.0	105	
MANGANESE	0.11	0.500	302	
MOLYBDENUM	0.25	0.500	2620	
NICKEL	0.37	0.500	105	
SELENIUM	0.68	1.0	386	
SILVER	0.33	0.200	8.7	
THALLIUM	0.62	2.0	394	
VANADIUM	0.23	0.500	123	
ZINC	1.1	3.0	122	

Comments:

INORGANIC ANALYSES DATA SHEET 2  
RESULTSAnalytical Method: 6010-A98AAB #: A8808666

453 224

Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: S8-119-02Lab Sample ID: A8477205Matrix: SOIL% Solids: 89.8Dilution: 1.00Date Received: 26-Oct-98Date Extracted: 28-Oct-98Date Analyzed: 31-Oct-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
ALUMINUM	5.4	5.0	11300	
ANTIMONY	0.89	1.0	0.89	U
ARSENIC	0.68	2.0	3.1	
BARIUM	0.11	0.500	55.0	
BERYLLIUM	0.11	0.300	0.52	
CADMIUM	0.070	0.100	0.070	U
CALCIUM	409	20.0	193000	
CHROMIUM	0.22	0.500	20.2	
COBALT	0.16	0.200	4.1	
COPPER	0.25	0.500	4.5	
IRON	7.5	5.0	8800	
LEAD	0.33	1.0	11.4	
MAGNESIUM	5.4	5.0	2290	
MANGANESE	0.11	0.500	250	
MOLYBDENUM	0.24	0.500	7.2	
NICKEL	0.36	0.500	8.1	
POTASSIUM	10.7	10.0	2620	
SELENIUM	0.64	1.0	0.64	U
SILVER	0.32	0.200	0.32	U
SODIUM	53.6	100.0	843	
THALLIUM	0.59	2.0	1.3	F
VANADIUM	0.22	0.500	21.1	
ZINC	1.0	3.0	23.3	

Comments:

Analytical Method: 6010-A98AAB #: A8808666Lab Name: STL BuffaloContract #: F46162495080

453 225

Field Sample ID: S8-120-01Lab Sample ID: A8477206Matrix: SOIL% Solids: 96.5Dilution: 1.00Date Received: 26-Oct-98Date Extracted: 28-Oct-98Date Analyzed: 31-Oct-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
ALUMINUM	5.0	5.0	8800	
ANTIMONY	0.84	1.0	0.84	U
ARSENIC	0.64	2.0	1.2	F
BARIUM	0.10	0.500	33.2	
BERYLLIUM	0.10	0.300	0.39	
CADMIUM	0.066	0.100	0.066	U
CALCIUM	384	20.0	193000	
CHROMIUM	0.20	0.500	16.6	
COBALT	0.15	0.200	2.1	
COPPER	0.24	0.500	3.0	
IRON	7.1	5.0	6840	
LEAD	0.31	1.0	4.2	
MAGNESIUM	5.0	5.0	2070	
MANGANESE	0.10	0.500	156	
MOLYBDENUM	0.22	0.500	0.22	U
NICKEL	0.33	0.500	5.2	
POTASSIUM	10.1	10.0	1640	
SELENIUM	0.60	1.0	0.60	U
SILVER	0.30	0.200	0.30	U
SODIUM	50.4	100.0	856	
THALLIUM	0.56	2.0	0.56	U
VANADIUM	0.20	0.500	15.2	
ZINC	0.97	3.0	17.0	

Comments:

Analytical Method: 7471-A98AAB #: A8B08599 453 226Lab Name: STL BuffaloContract #: F46162495D80Base/Command: NAS Ft Worth/Offsite WeapPrime Contractor: The Environmental Com

Field Sample ID

Lab Sample ID

SB-116-01A8477201SB-117-01A8477202SB-118-01A8477203SB-119-01A8477204SB-119-01 MSA8477204MSSB-119-01 SDA8477204SDSB-119-02A8477205SB-120-01A8477206

Comments:

See Case Narrative

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Signature: Name: Kenneth E. KasparekDate: Title: Laboratory Director

Analytical Method: 7471-A98AAS #: A88D8599Lab Name: STL BuffaloContract #: F46162495080

453 227

Field Sample ID: S8-116-01Lab Sample ID: A8477201Matrix: SOIL% Solids: 89.6Dilution: 1.00Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 28-Oct-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
MERCURY	0.039	0.100	0.039	U

Comments:  
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\_\_\_\_\_

000330

Analytical Method: 7471-A98AAB #: A8808599

453 223

Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: SB-117-01Lab Sample ID: A8477202Matrix: SOIL% Solids: 89.4Dilution: 1.00Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 28-Oct-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
MERCURY	0.039	0.100	0.039	U

Comments:  
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Analytical Method: 7471-A98AAB #: A8808599Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: SB-118-01Lab Sample ID: A8477203Matrix: SOIL% Solids: 86.2Dilution: 1.00Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 28-Oct-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
MERCURY	0.040	0.100	0.040	U

Comments:  
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Analytical Method: 7471-A98AAB #: A8808599

453 230

Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: S8-119-01Lab Sample ID: A8477204Matrix: SOIL% Solids: 87.7Dilution: 1.00Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 28-Oct-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
MERCURY	0.040	0.100	0.040	U

Comments:  
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000333

Analytical Method: 7471-A98AAB #: A8808599Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: S8-119-01 MSLab Sample ID: A8477204MSMatrix: SOIL% Solids: 87.7Dilution: 1.00Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 28-Oct-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
MERCURY	0.040	0.100	0.64	

Comments:  
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\_\_\_\_\_  
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000334

Analytical Method: 7471-A98AAB #: A8808599 453 232Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: SB-119-01 SDLab Sample ID: A8477204SDMatrix: SOIL% Solids: 87.7Dilution: 1.00Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 28-Oct-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
MERCURY	0.040	0.100	0.66	

Comments:  
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\_\_\_\_\_  
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000335

Analytical Method: 7471-A98AAB #: A8808599Lab Name: STL BuffaloContract #: F46162495080

453 233

Field Sample ID: S8-119-02Lab Sample ID: A8477205Matrix: SOIL% Solids: 89.8Dilution: 1.00Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 28-Oct-98Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
MERCURY	0.039	0.100	0.10	

Comments:  
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\_\_\_\_\_  
\_\_\_\_\_

Analytical Method: 7471-A98

AAB #: A8808599 453 234

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: S8-120-01

Lab Sample ID: A8477206

Matrix: SOIL

% Solids: 96.5

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 28-Oct-98

Concentration Units (ug/L or mg/kg dry weight): MG/KG

Analyte	MDL	PQL	Concentration	Qualifier
MERCURY	0.036	0.100	0.036	U

Comments:

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453 235

AFCEE  
ORGANIC ANALYSES DATA PACKAGE

000092

Analytical Method: 8021-A98AAB #: A8B09672Lab Name: Recra LabNetContract #: F46162495D80Base/Command: NAS Ft Worth/Offsite WeapPrime Contractor: The Environmental Company

Field Sample ID

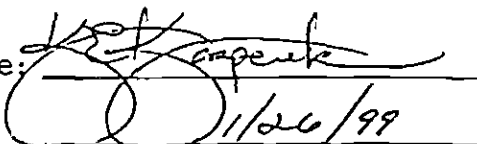
Lab Sample ID

EB-100A8477207TB-100A8477208TB-101A 8477101

Comments:

See Case Narrative

I certify this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Name: Kenneth E. KasperekDate: 11/26/99Title: Laboratory Director

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

453 236

000000

Analytical Method: B021-A98

AAB #: A8809672

Lab Name: Recra LabNet

Contract #: F46162495080

Field Sample ID: EB-100

Lab Sample ID: A8477207

Matrix: WATER

% Solids:           

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted:           

Date Analyzed: 27-Oct-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.15	0.200	0.15	U
ETHYLBENZENE	0.15	0.200	0.15	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.25	0.500	0.25	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.086	0.200	0.086	U
P-XYLENE (1,4-DIMETHYLBENZENE)	0.25	0.500	0.25	U
TOLUENE	0.16	0.200	0.84	
tert-BUTYL METHYL ETHER	0.23	0.500	0.23	U

Comments:

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453 237

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTSAnalytical Method: B021-A98AAB #: A8809672Lab Name: Recra LabNetContract #: F46162495080Field Sample ID: TB-100Lab Sample ID: A8477208Matrix: WATER% Solids:       Dilution: 1.00Date Received: 26-Oct-98Date Extracted:       Date Analyzed: 27-Oct-98Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.15	0.200	0.15	U
ETHYLBENZENE	0.15	0.200	0.15	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.25	0.500	0.25	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.086	0.200	0.086	U
P-XYLENE (1,4-DIMETHYLBENZENE)	0.25	0.500	0.25	U
TOLUENE	0.16	0.200	0.16	U
tert-BUTYL METHYL ETHER	0.23	0.500	0.23	U

Comments:

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

453 238

Analytical Method: 8021-A98

AAB #: A8809672

Lab Name: Recre LabNet

Contract #: F46162495D80

Field Sample ID: Matrix Spike Blank

Lab Sample ID: A880967202

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 27-Oct-98

Date Extracted:       

Date Analyzed: 27-Oct-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.15	0.200	4.1	
ETHYLBENZENE	0.15	0.200	4.3	
M-XYLENE (1,3-DIMETHYLBENZENE)	0.25	0.500	8.4	
O-XYLENE (1,2-DIMETHYLBENZENE)	0.086	0.200	4.1	
P-XYLENE (1,4-DIMETHYLBENZENE)	0.25	0.500	0.25	U
TOLUENE	0.16	0.200	4.1	
tert-BUTYL METHYL ETHER	0.23	0.500	4.4	

Comments:

m-xylene and p-xylene Coelute



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ORGANIC ANALYSES DATA SHEET 2  
RESULTS

453 239

Analytical Method: 8021-A98

AAB #: A8809672

Lab Name: Recra LabNet

Contract #: F46162495080

Field Sample ID: Matrix Spike Blk Dup

Lab Sample ID: A880967203

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 27-Oct-98

Date Extracted:       

Date Analyzed: 27-Oct-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.15	0.200	4.1	
ETHYLBENZENE	0.15	0.200	4.2	
M-XYLENE (1,3-DIMETHYLBENZENE)	0.25	0.500	8.4	
O-XYLENE (1,2-DIMETHYLBENZENE)	0.086	0.200	4.1	
P-XYLENE (1,4-DIMETHYLBENZENE)	0.25	0.500	0.25	U
TOLUENE	0.16	0.200	4.1	
tert-BUTYL METHYL ETHER	0.23	0.500	4.5	

Comments:

m-xylene and p-xylene Chelute.

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ORGANIC ANALYSES DATA SHEET 2  
RESULTS

400 440  
000028

Analytical Method: 8021-A98

AAB #: A9800285

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: AB-100

Lab Sample ID: A8477103

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted:       

Date Analyzed: 26-Oct-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.15	0.200	0.15	U
ETHYLBENZENE	0.15	0.200	0.15	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.25	0.500	0.25	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.086	0.200	0.086	U
P-XYLENE (1,4-DIMETHYLBENZENE)	0.25	0.500	0.25	U
TOLUENE	0.16	0.200	0.16	U
tert-BUTYL METHYL ETHER	0.23	0.500	0.23	U

Comments:

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AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000029

453 241

Analytical Method: 8021-A98

AAS #: A9B00285

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: Trip Blank -101

Lab Sample ID: A8477101

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted:       

Date Analyzed: 26-Oct-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.15	0.200	0.15	U
ETHYLBENZENE	0.15	0.200	0.15	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.25	0.500	0.25	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.086	0.200	0.086	U
P-XYLENE (1,4-DIMETHYLBENZENE)	0.25	0.500	0.25	U
TOLUENE	0.16	0.200	1.1	
tert-BUTYL METHYL ETHER	0.23	0.500	0.23	U

Comments:

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000030

152 210 453 242

Analytical Method: 8021-A98

AAB #: A9B00285

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: Matrix Spike Blank

Lab Sample ID: A9B0028502

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted:       

Date Analyzed: 26-Oct-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.15	0.200	3.8	
ETHYLBENZENE	0.15	0.200	3.7	
M-XYLENE (1,3-DIMETHYLBENZENE)	0.25	0.500	7.6	1
O-XYLENE (1,2-DIMETHYLBENZENE)	0.086	0.200	3.8	
P-XYLENE (1,4-DIMETHYLBENZENE)	0.25	0.500	0.25	1U
TOLUENE	0.16	0.200	3.9	
tert-BUTYL METHYL ETHER	0.23	0.500	3.8	

Comments:

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453 243

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000031

Analytical Method: 8021-A98AAS #: A9800285Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: Matrix Spike Blk Dup Lab Sample ID: A980028503Matrix: WATER% Solids:       Dilution: 1.00Date Received: 26-Oct-98Date Extracted:       Date Analyzed: 26-Oct-98Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BENZENE	0.15	0.200	3.9	
ETHYLBENZENE	0.15	0.200	3.8	
M-XYLENE (1,3-DIMETHYLBENZENE)	0.25	0.500	7.7	
O-XYLENE (1,2-DIMETHYLBENZENE)	0.086	0.200	3.9	
P-XYLENE (1,4-DIMETHYLBENZENE)	0.25	0.500	0.25	U
TOLUENE	0.16	0.200	3.9	
tert-BUTYL METHYL ETHER	0.23	0.500	3.7	

Comments:

Analytical Method: 8260-A98AAB #: A9B00594

453 244

Lab Name: STL BuffaloContract #: F46162495D80Base/Command: NAS Ft Worth/Offsite WeapPrime Contractor: The Environmental Company

Field Sample ID

Lab Sample ID

EB-100A8477207TB-100A8477208

Comments:

See Case Narrative

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Signature: Name: Kenneth E. KasperekDate: 1/26/99Title: Laboratory Director

453 245

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTSAnalytical Method: 8260-A98AAB #: A9800594Lab Name: STL BuffaloContract #: F46162495D8DField Sample ID: EB-100Lab Sample ID: A8477207Matrix: WATER

% Solids: \_\_\_\_\_

Dilution: 1.00Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 5-Nov-98Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
1,1,1,2-TETRACHLOROETHANE	0.8	1.0	0.8	U
1,1,1-TRICHLOROETHANE	0.8	1.0	0.8	U
1,1,2,2-TETRACHLOROETHANE	0.8	1.0	0.8	U
1,1,2-TRICHLOROETHANE	1	1.0	1	U
1,1-DICHLOROETHANE	0.6	1.0	0.6	U
1,1-DICHLOROETHENE	1	1.0	1	U
1,1-DICHLOROPROPENE	0.8	1.0	0.8	U
1,2,3-TRICHLOROBENZENE	0.9	1.0	0.9	U
1,2,3-TRICHLOROPROPANE	0.8	1.0	0.8	U
1,2,4-TRICHLOROBENZENE	0.8	1.0	0.8	U
1,2,4-TRIMETHYLBENZENE	0.9	1.0	0.9	U
1,2-DICHLOROETHANE	0.8	1.0	0.8	U
1,2-DICHLOROBENZENE	0.8	1.0	0.8	U
1,2-DIBROMO-3-CHLOROPROPANE	1	1.0	1	U
1,2-DICHLOROPROPANE	0.7	1.0	0.7	U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	1	1.0	1	U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	0.8	1.0	0.8	U
1,3-DICHLOROBENZENE	0.7	1.0	0.7	U
1,3-DICHLOROPROPANE	0.9	1.0	0.9	U
1,4-DICHLOROBENZENE	0.8	1.0	0.8	U
1-CHLOROHXANE	0.6	1.0	0.6	U
2,2-DICHLOROPROPANE	0.6	1.0	0.6	U
2-CHLOROTOLUENE	0.8	1.0	0.8	U
4-CHLOROTOLUENE	0.8	1.0	0.8	U
BENZENE	0.8	1.0	0.8	U

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

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Analytical Method: 8260-A98

AAB #: A9B00594

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: EB-100

Lab Sample ID: A8477207

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted:       

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BROMOBENZENE	0.7	1.0	0.7	U
BROMOCHLOROMETHANE	1	1.0	1	U
BROMODICHLOROMETHANE	1	1.0	1	U
BROMOFORM	0.8	1.0	0.8	U
BROMOMETHANE	1	1.0	1	U
CARBON TETRACHLORIDE	0.8	1.0	0.8	U
CHLOROBENZENE	1	1.0	1	U
CHLOROETHANE	0.8	1.0	0.8	U
CHLOROFORM	0.7	1.0	0.7	U
CHLOROMETHANE	0.7	1.0	0.7	U
cis-1,2-DICHLOROETHYLENE	0.6	1.0	0.6	U
cis-1,3-DICHLOROPROPENE	0.8	1.0	0.8	U
DIBROMOCHLOROMETHANE	0.9	1.0	0.9	U
DIBROMOMETHANE	1	1.0	1	U
DICHLORODIFLUOROMETHANE	1	1.0	1	U
ETHYLBENZENE	0.9	1.0	0.9	U
HEXACHLOROBUTADIENE	0.8	1.0	0.8	U
ISOPROPYLBENZENE (CUMENE)	0.8	1.0	0.8	U
M-XYLENE (1,3-DIMETHYLBENZENE)	2	1.0	2	U
METHYLENE CHLORIDE	1	1.0	1	U
n-BUTYLBENZENE	1	1.0	1	U
n-PROPYLBENZENE	0.9	1.0	0.9	U
NAPHTHALENE	1	1.0	1	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.8	1.0	0.8	U
P-CYME (p-ISOPROPYLTOLUENE)	1	1.0	1	U



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AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTSAnalytical Method: 8260-A98AAB #: A9800594Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: EB-100Lab Sample ID: A8477207Matrix: WATER% Solids:       Dilution: 1.00Date Received: 26-Oct-98Date Extracted:       Date Analyzed: 5-Nov-98Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
P-XYLENE (1,4-DIMETHYLBENZENE)	2	1.0	2	U
SEC-BUTYLBENZENE	0.9	1.0	0.9	U
STYRENE	0.8	1.0	0.8	U
TRICHLOROETHYLENE (TCE)	0.8	1.0	0.8	U
t-BUTYLBENZENE	0.8	1.0	0.8	U
TETRACHLOROETHYLENE (PCE)	0.9	1.0	0.9	U
TOLUENE	0.8	1.0	0.8	U
trans-1,2-DICHLOROETHENE	0.8	1.0	0.8	U
trans-1,3-DICHLOROPROPENE	0.8	1.0	0.8	U
TRICHLOROFLUOROMETHANE	0.6	1.0	0.6	U
VINYL CHLORIDE	1	1.0	1	U

Comments:  

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AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

453 248

Analytical Method: 8260-A98

AAB #: A9800594

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: TB-100

Lab Sample ID: A8477208

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted:       

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
1,1,1,2-TETRACHLOROETHANE	0.8	1.0	0.8	U
1,1,1-TRICHLOROETHANE	0.8	1.0	0.8	U
1,1,2,2-TETRACHLOROETHANE	0.8	1.0	0.8	U
1,1,2-TRICHLOROETHANE	1	1.0	1	U
1,1-DICHLOROETHANE	0.6	1.0	0.6	U
1,1-DICHLOROETHENE	1	1.0	1	U
1,1-DICHLOROPROPENE	0.8	1.0	0.8	U
1,2,3-TRICHLOROBENZENE	0.9	1.0	0.9	U
1,2,3-TRICHLOROPROPANE	0.8	1.0	0.8	U
1,2,4-TRICHLOROBENZENE	0.8	1.0	0.8	U
1,2,4-TRIMETHYLBENZENE	0.9	1.0	0.9	U
1,2-DICHLOROETHANE	0.8	1.0	0.8	U
1,2-DICHLOROBENZENE	0.8	1.0	0.8	U
1,2-DIBROMO-3-CHLOROPROPANE	1	1.0	1	U
1,2-DICHLOROPROPANE	0.7	1.0	0.7	U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	1	1.0	1	U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	0.8	1.0	0.8	U
1,3-DICHLOROBENZENE	0.7	1.0	0.7	U
1,3-DICHLOROPROPANE	0.9	1.0	0.9	U
1,4-DICHLOROBENZENE	0.8	1.0	0.8	U
1-CHLOROHEXANE	0.6	1.0	0.6	U
2,2-DICHLOROPROPANE	0.6	1.0	0.6	U
2-CHLOROTOLUENE	0.8	1.0	0.8	U
4-CHLOROTOLUENE	0.8	1.0	0.8	U
BENZENE	0.8	1.0	0.8	U

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Analytical Method: 8260-A98

AAB #: A9800594

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: JB-100

Lab Sample ID: A8477208

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted:       

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BROMOBENZENE	0.7	1.0	0.7	U
BROMOCHLOROMETHANE	1	1.0	1	U
BROMODICHLOROMETHANE	1	1.0	1	U
BROMOFORM	0.8	1.0	0.8	U
BROMOMETHANE	1	1.0	1	U
CARBON TETRACHLORIDE	0.8	1.0	0.8	U
CHLOROBENZENE	1	1.0	1	U
CHLOROETHANE	0.8	1.0	0.8	U
CHLOROFORM	0.7	1.0	0.7	U
CHLOROMETHANE	0.7	1.0	0.7	U
cis-1,2-DICHLOROETHYLENE	0.6	1.0	0.6	U
cis-1,3-DICHLOROPROPENE	0.8	1.0	0.8	U
DIBROMOCHLOROMETHANE	0.9	1.0	0.9	U
DIBROMOMETHANE	1	1.0	1	U
DICHLORODIFLUOROMETHANE	1	1.0	1	U
ETHYLBENZENE	0.9	1.0	0.9	U
HEXACHLOROBUTADIENE	0.8	1.0	0.8	U
ISOPROPYLBENZENE (CUMENE)	0.8	1.0	0.8	U
M-XYLENE (1,3-DIMETHYLBENZENE)	2	1.0	2	U
METHYLENE CHLORIDE	1	1.0	1	U
n-BUTYLBENZENE	1	1.0	1	U
n-PROPYLBENZENE	0.9	1.0	0.9	U
NAPHTHALENE	1	1.0	1	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.8	1.0	0.8	U
P-CYME (p-ISOPROPYLTOLUENE)	1	1.0	1	U

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ORGANIC ANALYSES DATA SHEET 2  
RESULTS

453 250

Analytical Method: 8260-A98

AAB #: A9B00594

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: 7B-100

Lab Sample ID: A8477208

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted:       

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
P-XYLENE (1,4-DIMETHYLBENZENE)	2	1.0	2	U
SEC-BUTYLBENZENE	0.9	1.0	0.9	U
STYRENE	0.8	1.0	0.8	U
TRICHLOROETHYLENE (TCE)	0.8	1.0	0.8	U
t-BUTYLBENZENE	0.8	1.0	0.8	U
TETRACHLOROETHYLENE (PCE)	0.9	1.0	0.9	U
TOLUENE	0.8	1.0	0.8	U
trans-1,2-DICHLOROETHENE	0.8	1.0	0.8	U
trans-1,3-DICHLOROPROPENE	0.8	1.0	0.8	U
TRICHLOROFLUOROMETHANE	0.6	1.0	0.6	U
VINYL CHLORIDE	1	1.0	1	U

Comments:

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453 251  
Analytical Method: 8260-A98

AAB #: A9800594

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: Matrix Spike Blank

Lab Sample ID: A980059402

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 5-Nov-98

Date Extracted:       

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
1,1,1,2-TETRACHLOROETHANE	0.8	1.0	57	
1,1,1-TRICHLOROETHANE	0.8	1.0	60	
1,1,2,2-TETRACHLOROETHANE	0.8	1.0	53	
1,1,2-TRICHLOROETHANE	1	1.0	56	
1,1-DICHLOROETHANE	0.6	1.0	56	
1,1-DICHLOROETHENE	1	1.0	55	
1,1-DICHLOROPROPENE	0.8	1.0	52	
1,2,3-TRICHLOROBENZENE	0.9	1.0	49	
1,2,3-TRICHLOROPROPANE	0.8	1.0	56	
1,2,4-TRICHLOROBENZENE	0.8	1.0	50	
1,2,4-TRIMETHYLBENZENE	0.9	1.0	56	
1,2-DICHLOROETHANE	0.8	1.0	62	
1,2-DICHLOROBENZENE	0.8	1.0	54	
1,2-DIBROMO-3-CHLOROPROPANE	1	1.0	60	
1,2-DICHLOROPROPANE	0.7	1.0	52	
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	1	1.0	52	
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	0.8	1.0	57	
1,3-DICHLOROBENZENE	0.7	1.0	54	
1,3-DICHLOROPROPANE	0.9	1.0	57	
1,4-DICHLOROBENZENE	0.8	1.0	51	
1-CHLOROHEXANE	0.6	1.0	0.6	U
2,2-DICHLOROPROPANE	0.6	1.0	57	
2-CHLOROTOLUENE	0.8	1.0	55	
4-CHLOROTOLUENE	0.8	1.0	55	
BENZENE	0.8	1.0	50	

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ORGANIC ANALYSES DATA SHEET 2  
RESULTS

Analytical Method: 8260-A98

AAB #: A9800594 453 252

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: Matrix Spike Blank Lab Sample ID: A980059402

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 5-Nov-98

Date Extracted:       

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BROMOBENZENE	0.7	1.0	52	
BROMOCHLOROMETHANE	1	1.0	49	
BROMODICHLOROMETHANE	1	1.0	57	
BROMOFORM	0.8	1.0	58	
BROMOMETHANE	1	1.0	51	
CARBON TETRACHLORIDE	0.8	1.0	60	
CHLOROBENZENE	1	1.0	51	
CHLOROETHANE	0.8	1.0	62	
CHLOROFORM	0.7	1.0	57	
CHLOROMETHANE	0.7	1.0	64	
cis-1,2-DICHLOROETHYLENE	0.6	1.0	49	
cis-1,3-DICHLOROPROPENE	0.8	1.0	53	
DIBROMOCHLOROMETHANE	0.9	1.0	58	
DIBROMOMETHANE	1	1.0	54	
DICHLORODIFLUOROMETHANE	1	1.0	81	
ETHYLBENZENE	0.9	1.0	58	
HEXACHLOROBUTADIENE	0.8	1.0	58	
ISOPROPYLBENZENE (CUMENE)	0.8	1.0	56	
M-XYLENE (1,3-DIMETHYLBENZENE)	2	1.0	120	1
METHYLENE CHLORIDE	1	1.0	52	
n-BUTYLBENZENE	1	1.0	55	
n-PROPYLBENZENE	0.9	1.0	58	
NAPHTHALENE	1	1.0	42	
O-XYLENE (1,2-DIMETHYLBENZENE)	0.8	1.0	54	
P-CYME (p-ISOPROPYLTOLUENE)	1	1.0	58	

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

453.253

Analytical Method: 8260-A98

AAB #: A9800594

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: Matrix Spike Blank

Lab Sample ID: A980059402

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 5-Nov-98

Date Extracted:       

Date Analyzed: 5-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
P-XYLENE (1,4-DIMETHYLBENZENE)	2	1.0	2	1U
SEC-BUTYLBENZENE	0.9	1.0	60	
STYRENE	0.8	1.0	52	
TRICHLOROETHYLENE (TCE)	0.8	1.0	50	
t-BUTYLBENZENE	0.8	1.0	55	
TETRACHLOROETHYLENE(PCE)	0.9	1.0	54	
TOLUENE	0.8	1.0	53	
trans-1,2-DICHLOROETHENE	0.8	1.0	48	
trans-1,3-DICHLOROPROPENE	0.8	1.0	58	
TRICHLOROFLUOROMETHANE	0.6	1.0	67	
VINYL CHLORIDE	1	1.0	63	

Comments:

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Analytical Method: 8260-A98AAB #: A9B00536

453 251

Lab Name: STL BuffaloContract #: F46162495D80Base/Command: NAS Ft Worth/Offsite WeapPrime Contractor: The Environmental Company

Field Sample ID

AB-100

Lab Sample ID

A8477103

Comments:

See Case Narrative

I certify this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature:

Name: Kenneth E. Kasperek

Date:

Title: Laboratory Director



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ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000101

Analytical Method: B260-A98AAB #: A9800536Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: AB-100Lab Sample ID: A8477103Matrix: WATER% Solids:       Dilution: 1.00Date Received: 26-Oct-98Date Extracted:       Date Analyzed: 2-Nov-98Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
1,1,1,2-TETRACHLOROETHANE	0.2	1.0	0.2	U
1,1,1-TRICHLOROETHANE	0.2	1.0	0.2	U
1,1,2,2-TETRACHLOROETHANE	0.2	1.0	0.2	U
1,1,2-TRICHLOROETHANE	0.2	1.0	0.2	U
1,1-DICHLOROETHANE	0.1	1.0	0.1	U
1,1-DICHLOROETHENE	0.2	1.0	0.2	U
1,1-DICHLOROPROPENE	0.2	1.0	0.2	U
1,2,3-TRICHLOROBENZENE	0.2	1.0	0.2	U
1,2,3-TRICHLOROPROPANE	0.2	1.0	0.2	U
1,2,4-TRICHLOROBENZENE	0.2	1.0	0.2	U
1,2,4-TRIMETHYLBENZENE	0.2	1.0	0.2	U
1,2-DICHLOROETHANE	0.2	1.0	0.2	U
1,2-DICHLOROBENZENE	0.2	1.0	0.2	U
1,2-DIBROMO-3-CHLOROPROPANE	0.2	1.0	0.2	U
1,2-DICHLOROPROPANE	0.1	1.0	0.1	U
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.2	1.0	0.2	U
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	0.2	1.0	0.2	U
1,3-DICHLOROBENZENE	0.1	1.0	0.1	U
1,3-DICHLOROPROPANE	0.2	1.0	0.2	U
1,4-DICHLOROBENZENE	0.2	1.0	0.2	U
1-CHLOROHXANE	0.1	1.0	0.1	U
2,2-DICHLOROPROPANE	0.1	1.0	0.1	U
2-CHLOROTOLUENE	0.2	1.0	0.2	U
4-CHLOROTOLUENE	0.2	1.0	0.2	U
BENZENE	0.2	1.0	0.2	U

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ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000192  
453 256

Analytical Method: 8260-A98

AAB #: A9B00536

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: AB-100

Lab Sample ID: A8477103

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted:       

Date Analyzed: 2-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BROMOBENZENE	0.1	1.0	0.1	U
BROMOCHLOROMETHANE	0.2	1.0	0.2	U
BROMODICHLOROMETHANE	0.2	1.0	0.2	U
BROMOFORM	0.2	1.0	0.2	U
BROMOMETHANE	0.2	1.0	0.2	U
CARBON TETRACHLORIDE	0.2	1.0	0.2	U
CHLOROBENZENE	0.2	1.0	0.2	U
CHLOROETHANE	0.2	1.0	0.2	U
CHLOROFORM	0.1	1.0	0.4	F
CHLOROMETHANE	0.1	1.0	0.1	U
cis-1,2-DICHLOROETHYLENE	0.1	1.0	0.1	U
cis-1,3-DICHLOROPROPENE	0.2	1.0	0.2	U
DIBROMOCHLOROMETHANE	0.2	1.0	0.2	U
DIBROMOMETHANE	0.2	1.0	0.2	U
DICHLORODIFLUOROMETHANE	0.2	1.0	0.2	U
ETHYLBENZENE	0.2	1.0	0.2	U
HEXACHLOROBUTADIENE	0.2	1.0	0.2	U
ISOPROPYLBENZENE (CUMENE)	0.2	1.0	0.2	U
M-XYLENE (1,3-DIMETHYLBENZENE)	0.4	1.0	0.4	U
METHYLENE CHLORIDE	0.2	1.0	0.4	F
n-BUTYLBENZENE	0.2	1.0	0.2	U
n-PROPYLBENZENE	0.2	1.0	0.2	U
NAPHTHALENE	0.2	1.0	0.2	U
O-XYLENE (1,2-DIMETHYLBENZENE)	0.2	1.0	0.2	U
P-CYMENE (p-ISOPROPYLTOLUENE)	0.2	1.0	0.2	U

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ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000103

Analytical Method: B260-A98AAB #: A9800536Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: AB-100Lab Sample ID: A8477103Matrix: WATER% Solids:       Dilution: 1.00Date Received: 26-Oct-98Date Extracted:       Date Analyzed: 2-Nov-98Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
P-XYLENE (1,4-DIMETHYLBENZENE)	0.4	1.0	0.4	U
SEC-BUTYLBENZENE	0.2	1.0	0.2	U
STYRENE	0.2	1.0	0.2	U
TRICHLOROETHYLENE (TCE)	0.2	1.0	0.2	U
t-BUTYLBENZENE	0.2	1.0	0.2	U
TETRACHLOROETHYLENE(PCE)	0.2	1.0	0.2	U
TOLUENE	0.2	1.0	1	
trans-1,2-DICHLOROETHENE	0.2	1.0	0.2	U
trans-1,3-DICHLOROPROPENE	0.2	1.0	0.2	U
TRICHLOROFLUOROMETHANE	0.1	1.0	0.1	U
VINYL CHLORIDE	0.2	1.0	0.2	U

Comments:

m&P Xylene co-elute

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RESULTS

000104

453 258

Analytical Method: 8260-A98

AAB #: A9800536

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: Matrix Spike Blank

Lab Sample ID: A8477109

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received:       

Date Extracted:       

Date Analyzed: 2-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
1,1,1,2-TETRACHLOROETHANE	0.2	1.0	10	
1,1,1-TRICHLOROETHANE	0.2	1.0	11	
1,1,2,2-TETRACHLOROETHANE	0.2	1.0	9	
1,1,2-TRICHLOROETHANE	0.2	1.0	10	
1,1-DICHLOROETHANE	0.1	1.0	10	
1,1-DICHLOROETHENE	0.2	1.0	11	
1,1-DICHLOROPROPENE	0.2	1.0	11	
1,2,3-TRICHLOROBENZENE	0.2	1.0	8	
1,2,3-TRICHLOROPROPANE	0.2	1.0	10	
1,2,4-TRICHLOROBENZENE	0.2	1.0	8	
1,2,4-TRIMETHYLBENZENE	0.2	1.0	10	
1,2-DICHLOROETHANE	0.2	1.0	9	
1,2-DICHLOROBENZENE	0.2	1.0	10	
1,2-DIBROMO-3-CHLOROPROPANE	0.2	1.0	9	
1,2-DICHLOROPROPANE	0.1	1.0	9	
1,2-DIBROMOETHANE (ETHYLENE DIBROMIDE)	0.2	1.0	10	
1,3,5-TRIMETHYLBENZENE (MESITYLENE)	0.2	1.0	10	
1,3-DICHLOROBENZENE	0.1	1.0	10	
1,3-DICHLOROPROPANE	0.2	1.0	9	
1,4-DICHLOROBENZENE	0.2	1.0	10	
1-CHLOROHXANE	0.1	1.0	0.1	U
2,2-DICHLOROPROPANE	0.1	1.0	11	
2-CHLOROTOLUENE	0.2	1.0	10	
4-CHLOROTOLUENE	0.2	1.0	10	
BENZENE	0.2	1.0	10	B

453 259

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ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000105

Analytical Method: B260-A98AAB #: A9800536Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: Matrix Spike BlankLab Sample ID: A8477109Matrix: WATER% Solids:       Dilution: 1.00Date Received:       Date Extracted:       Date Analyzed: 2-Nov-98Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
BROMOBENZENE	0.1	1.0	10	
BROMOCHLOROMETHANE	0.2	1.0	10	
BROMODICHLOROMETHANE	0.2	1.0	10	
BROMOFORM	0.2	1.0	9	
BROMOMETHANE	0.2	1.0	8	
CARBON TETRACHLORIDE	0.2	1.0	11	
CHLOROBENZENE	0.2	1.0	10	
CHLOROETHANE	0.2	1.0	10	
CHLOROFORM	0.1	1.0	10	
CHLOROMETHANE	0.1	1.0	8	
cis-1,2-DICHLOROETHYLENE	0.1	1.0	10	
cis-1,3-DICHLOROPROPENE	0.2	1.0	10	
DIBROMOCHLOROMETHANE	0.2	1.0	10	
DIBROMOMETHANE	0.2	1.0	10	
DICHLORODIFLUOROMETHANE	0.2	1.0	15	
ETHYLBENZENE	0.2	1.0	10	
HEXACHLOROBUTADIENE	0.2	1.0	10	B
ISOPROPYLBENZENE (CUMENE)	0.2	1.0	11	
M-XYLENE (1,3-DIMETHYLBENZENE)	0.4	1.0	21	/
METHYLENE CHLORIDE	0.2	1.0	10	
n-BUTYLBENZENE	0.2	1.0	10	
n-PROPYLBENZENE	0.2	1.0	11	
NAPHTHALENE	0.2	1.0	8	
O-XYLENE (1,2-DIMETHYLBENZENE)	0.2	1.0	10	
P-CYME (p-ISOPROPYLTOLUENE)	0.2	1.0	11	

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000106 453 260

Analytical Method: B260-A98

AAB #: A9800536

Lab Name: STL Buffalo

Contract #: F4616249SD80

Field Sample ID: Matrix Spike Blank

Lab Sample ID: A8477109

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received:       

Date Extracted:       

Date Analyzed: 2-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
P-XYLENE (1,4-DIMETHYLBENZENE)	0.4	1.0	21	/
SEC-BUTYLBENZENE	0.2	1.0	11	
STYRENE	0.2	1.0	10	
TRICHLOROETHYLENE (TCE)	0.2	1.0	11	
t-BUTYLBENZENE	0.2	1.0	11	
TETRACHLOROETHYLENE(PCE)	0.2	1.0	11	
TOLUENE	0.2	1.0	10	
trans-1,2-DICHLOROETHENE	0.2	1.0	11	
trans-1,3-DICHLOROPROPENE	0.2	1.0	9	
TRICHLOROFLUOROMETHANE	0.1	1.0	11	
VINYL CHLORIDE	0.2	1.0	11	

Comments:

*m & p Xylene co-elute*

453 261

Analytical Method: 8270-A98AAB #: A8B08763Lab Name: STL BuffaloContract #: F46162495D80Base/Command: NAS Ft Worth/Offsite WeapPrime Contractor: The Environmental Company

Field Sample ID

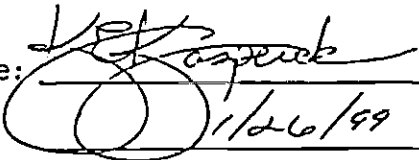
Lab Sample ID

EB-100A8477207EB-100A8477207MSEB-100A8477207SD

Comments:

See Case Narrative

I certify this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Name: Kenneth E. KasparekDate: 1/26/99Title: Laboratory Director

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000163

453 262

Analytical Method: 8270-A98

AAB #: A8808763

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: EB-100

Lab Sample ID: A8477207

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 30-Oct-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.8	10.0	0.8	U
1,2-DICHLOROBENZENE	2	10.0	2	U
1,3-DICHLOROBENZENE	1	10.0	1	U
1,4-DICHLOROBENZENE	1	10.0	1	U
2,4-DINITROTOLUENE	1	10.0	1	U
2,6-DINITROTOLUENE	2	10.0	2	U
2-CHLORONAPHTHALENE	2	10.0	2	U
2-METHYLNAPHTHALENE	1	10.0	1	U
2-NITROANILINE	2	50.0	2	U
3-NITROANILINE	2	50.0	2	U
3,3'-DICHLOROBENZIDINE	2	20.0	2	U
4-BROMOPHENYL PHENYL ETHER	2	10.0	2	U
4-CHLOROANILINE	1	20.0	1	U
4-CHLOROPHENYL PHENYL ETHER	1	10.0	1	U
4-NITROANILINE	3	50.0	3	U
ACENAPHTHYLENE	1	10.0	1	U
ACENAPHTHENE	1	10.0	1	U
ANTHRACENE	2	10.0	2	U
BENZO(a)ANTHRACENE	2	10.0	2	U
BENZO(a)PYRENE	2	10.0	2	U
BENZO(b)FLUORANTHENE	3	10.0	3	U
BENZO(g,h,i)PERYLENE	3	10.0	3	U
BENZYL ALCOHOL	5	20.0	5	U
bis(2-CHLOROETHOXY) METHANE	1	10.0	1	U
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	2	10.0	2	U



453 263

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000164

Analytical Method: 8270-A98AAB #: A8808763Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: EB-100Lab Sample ID: A8477207Matrix: WATER% Solids:       Dilution: 1.00Date Received: 26-Oct-98Date Extracted: 30-Oct-98Date Analyzed: 23-Nov-98Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MOL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	1	10.0	1	U
bis(2-ETHYLHEXYL) PHTHALATE	2	10.0	2	U
BENZYL BUTYL PHTHALATE	2	10.0	2	U
CHRYSENE	2	10.0	2	U
DI-n-BUTYL PHTHALATE	2	10.0	2	U
DI-n-OCTYL PHTHALATE	2	10.0	2	U
DIBENZ(a,h)ANTHRACENE	2	10.0	2	U
DIBENZOFURAN	2	10.0	2	U
DIETHYL PHTHALATE	2	10.0	2	U
DIMETHYL PHTHALATE	1	10.0	1	U
FLUORANTHENE	2	10.0	2	U
FLUORENE	2	10.0	2	U
HEXACHLOROBENZENE	2	10.0	2	U
HEXACHLOROBUTADIENE	1	10.0	1	U
HEXACHLOROCYCLOPENTADIENE	2	10.0	2	U
HEXACHLOROETHANE	0.8	10.0	0.8	U
INDENO(1,2,3-c,d)PYRENE	3	10.0	3	U
ISOPHORONE	1	10.0	1	U
N-NITROSODIPHENYLAMINE	1	10.0	1	U
N-NITROSODI-n-PROPYLAMINE	1	10.0	1	U
NAPHTHALENE	1	10.0	1	U
NITROBENZENE	2	10.0	2	U
PHENANTHRENE	1	10.0	1	U
PYRENE	2	10.0	2	U
2,4,5-TRICHLOROPHENOL	3	50.0	3	U

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RESULTS

000165  
453 264

Analytical Method: 8270-A98

AAS #: A8808763

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: EB-100

Lab Sample ID: A8477207

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 30-Oct-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MOL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	3	10.0	3	U
2,4-DICHLOROPHENOL	0.8	10.0	0.8	U
2,4-DIMETHYLPHENOL	2	10.0	2	U
2,4-DINITROPHENOL	2	50.0	2	U
2-CHLOROPHENOL	1	10.0	1	U
2-METHYLPHENOL (o-CRESOL)	2	10.0	2	U
2-NITROPHENOL	2	10.0	2	U
4,6-DINITRO-2-METHYLPHENOL	2	50.0	2	U
4-CHLORO-3-METHYLPHENOL	1	20.0	1	U
4-METHYLPHENOL (p-CRESOL)	1	10.0	1	U
4-NITROPHENOL	3	50.0	3	U
BENZOIC ACID	7	50.0	7	U
PENTACHLOROPHENOL	4	50.0	4	U
PHENOL	2	10.0	2	U

Comments:

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453 265  
Analytical Method: B270-A98

AAB #: A8808763

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: EB-100

Lab Sample ID: A8477207MS

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 30-Oct-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	2	10.0	97	
1,2-DICHLOROBENZENE	3	10.0	79	
1,3-DICHLOROBENZENE	2	10.0	61	
1,4-DICHLOROBENZENE	3	10.0	66	
2,4-DINITROTOLUENE	3	10.0	160	
2,6-DINITROTOLUENE	4	10.0	160	
2-CHLORONAPHTHALENE	3	10.0	130	
2-METHYLNAPHTHALENE	2	10.0	140	
2-NITROANILINE	3	50.0	140	
3-NITROANILINE	4	50.0	150	
3,3'-DICHLOROBENZIDINE	3	20.0	180	
4-BROMOPHENYL PHENYL ETHER	4	10.0	200	
4-CHLOROANILINE	2	20.0	140	
4-CHLOROPHENYL PHENYL ETHER	3	10.0	190	
4-NITROANILINE	6	50.0	160	
ACENAPHTHYLENE	2	10.0	140	
ACENAPHTHENE	3	10.0	160	
ANTHRACENE	3	10.0	180	
BENZO(a)ANTHRACENE	3	10.0	190	
BENZO(a)PYRENE	3	10.0	180	
BENZO(b)FLUORANTHENE	6	10.0	190	
BENZO(g,h,i)PERYLENE	6	10.0	150	
BENZYL ALCOHOL	10	20.0	120	
bis(2-CHLOROETHOXY) METHANE	2	10.0	130	
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	3	10.0	88	

000167

453 266

Analytical Method: B270-A98

AAB #: A8808763

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: E8-100

Lab Sample ID: A8477207MS

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 30-Oct-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	2	10.0	160	
bis(2-ETHYLHEXYL) PHTHALATE	4	10.0	140	
BENZYL BUTYL PHTHALATE	3	10.0	130	
CHRYSENE	3	10.0	200	
DI-n-BUTYL PHTHALATE	3	10.0	160	
DI-n-OCTYL PHTHALATE	4	10.0	130	
DIBENZ(a,h)ANTHRACENE	4	10.0	160	
DIBENZOFURAN	3	10.0	170	
DIETHYL PHTHALATE	3	10.0	180	
DIMETHYL PHTHALATE	2	10.0	170	
FLUORANTHENE	4	10.0	200	
FLUORENE	4	10.0	170	
HEXACHLOROBENZENE	4	10.0	210	
HEXACHLOROBUTADIENE	2	10.0	75	
HEXACHLOROCYCLOPENTADIENE	4	10.0	120	
HEXACHLOROETHANE	2	10.0	86	
INDENO(1,2,3-c,d)PYRENE	6	10.0	160	
ISOPHORONE	2	10.0	130	
N-NITROSODIPHENYLAMINE	3	10.0	170	
N-NITROSODI-n-PROPYLAMINE	2	10.0	130	
NAPHTHALENE	3	10.0	120	
NITROBENZENE	4	10.0	140	
PHENANTHRENE	3	10.0	190	
PYRENE	4	10.0	170	
2,4,5-TRICHLOROPHENOL	6	50.0	150	

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RESULTS

000100

453 267

Analytical Method: 8270-A98

AAB #: A8808763

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: EB-100

Lab Sample ID: A8477207MS

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 30-Oct-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	6	10.0	150	
2,4-DICHLOROPHENOL	2	10.0	160	
2,4-DIMETHYLPHENOL	3	10.0	150	
2,4-DINITROPHENOL	4	50.0	100	
2-CHLOROPHENOL	2	10.0	120	
2-METHYLPHENOL (o-CRESOL)	5	10.0	120	
2-NITROPHENOL	3	10.0	140	
4,6-DINITRO-2-METHYLPHENOL	4	50.0	64	
4-CHLORO-3-METHYLPHENOL	2	20.0	150	
4-METHYLPHENOL (p-CRESOL)	2	10.0	120	
4-NITROPHENOL	6	50.0	45	F
BENZOIC ACID	13	50.0	140	
PENTACHLOROPHENOL	7	50.0	55	
PHENOL	5	10.0	66	

Comments:

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AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000163

453 268

Analytical Method: 8270-A98

AAB #: A8808763

Lab Name: SIL Buffalo

Contract #: F46162495D80

Field Sample ID: EB-100

Lab Sample ID: A8477207SD

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 30-Oct-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	2	10.0	100	
1,2-DICHLOROBENZENE	3	10.0	96	
1,3-DICHLOROBENZENE	2	10.0	88	
1,4-DICHLOROBENZENE	3	10.0	92	
2,4-DINITROTOLUENE	3	10.0	180	
2,6-DINITROTOLUENE	4	10.0	190	
2-CHLORONAPHTHALENE	3	10.0	120	
2-METHYLNAPHTHALENE	2	10.0	98	
2-NITROANILINE	3	50.0	140	
3-NITROANILINE	4	50.0	170	
3,3'-DICHLOROBENZIDINE	3	20.0	180	
4-BROMOPHENYL PHENYL ETHER	4	10.0	210	
4-CHLOROANILINE	2	20.0	160	
4-CHLOROPHENYL PHENYL ETHER	3	10.0	190	
4-NITROANILINE	6	50.0	160	
ACENAPHTHYLENE	2	10.0	150	
ACENAPHTHENE	3	10.0	150	
ANTHRACENE	3	10.0	200	
BENZO(a)ANTHRACENE	3	10.0	200	
BENZO(a)PYRENE	3	10.0	190	
BENZO(b)FLUORANTHENE	6	10.0	210	
BENZO(g,h,i)PERYLENE	6	10.0	160	
BENZYL ALCOHOL	10	20.0	140	
bis(2-CHLOROETHOXY) METHANE	2	10.0	120	
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	3	10.0	100	

453 269

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000170

Analytical Method: B270-A98AAB #: A8808763Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: EB-100Lab Sample ID: A8477207SDMatrix: WATER% Solids:       Dilution: 1.00Date Received: 26-Oct-98Date Extracted: 30-Oct-98Date Analyzed: 23-Nov-98Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	2	10.0	180	
bis(2-ETHYLHEXYL) PHTHALATE	4	10.0	140	
BENZYL BUTYL PHTHALATE	3	10.0	140	
CHRYSENE	3	10.0	190	
DI-n-BUTYL PHTHALATE	3	10.0	180	
DI-n-OCTYL PHTHALATE	4	10.0	140	
DIBENZ(a,h)ANTHRACENE	4	10.0	180	
DIBENZOFURAN	3	10.0	170	
DIETHYL PHTHALATE	3	10.0	170	
DIMETHYL PHTHALATE	2	10.0	180	
FLUORANTHENE	4	10.0	220	
FLUORENE	4	10.0	180	
HEXACHLOROBENZENE	4	10.0	210	
HEXACHLOROBUTADIENE	2	10.0	95	
HEXACHLOROCYCLOPENTADIENE	4	10.0	110	
HEXACHLOROETHANE	2	10.0	90	
INDENO(1,2,3-c,d)PYRENE	6	10.0	170	
ISOPHORONE	2	10.0	120	
N-NITROSODIPHENYLAMINE	3	10.0	180	
N-NITROSODI-n-PROPYLAMINE	2	10.0	130	
NAPHTHALENE	3	10.0	120	
NITROBENZENE	4	10.0	160	
PHENANTHRENE	3	10.0	190	
PYRENE	4	10.0	170	
2,4,5-TRICHLOROPHENOL	6	50.0	150	

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ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000171

453 270

Analytical Method: B270-A98

AAB #: A8808763

Lab Name: STL Buffalo

Contract #: F46162495D80

Field Sample ID: EB-100

Lab Sample ID: A8477207SD

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 30-Oct-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	6	10.0	150	
2,4-DICHLOROPHENOL	2	10.0	160	
2,4-DIMETHYLPHENOL	3	10.0	140	
2,4-DINITROPHENOL	4	50.0	100	
2-CHLOROPHENOL	2	10.0	140	
2-METHYLPHENOL (o-CRESOL)	5	10.0	140	
2-NITROPHENOL	3	10.0	150	
4,6-DINITRO-2-METHYLPHENOL	4	50.0	29	F
4-CHLORO-3-METHYLPHENOL	2	20.0	170	
4-METHYLPHENOL (p-CRESOL)	2	10.0	140	
4-NITROPHENOL	6	50.0	41	F
BENZOIC ACID	13	50.0	110	
PENTACHLOROPHENOL	7	50.0	26	F
PHENOL	5	10.0	77	

Comments:

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453 271

Analytical Method: 8270-A98

AAB #: A8808763

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: Matrix Spike Blank Lab Sample ID: A880876301

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received:       

Date Extracted: 30-Oct-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MOL	PQL	Concentration	Qualifier
1,2,4-TRICHLOROBENZENE	0.8	10.0	53	
1,2-DICHLOROBENZENE	2	10.0	54	
1,3-DICHLOROBENZENE	1	10.0	46	
1,4-DICHLOROBENZENE	1	10.0	48	
2,4-DINITROTOLUENE	1	10.0	91	
2,6-DINITROTOLUENE	2	10.0	83	
2-CHLORONAPHTHALENE	2	10.0	61	
2-METHYLNAPHTHALENE	1	10.0	74	
2-NITROANILINE	2	50.0	76	
3-NITROANILINE	2	50.0	83	
3,3'-DICHLOROBENZIDINE	2	20.0	93	
4-BROMOPHENYL PHENYL ETHER	2	10.0	100	
4-CHLOROANILINE	1	20.0	93	
4-CHLOROPHENYL PHENYL ETHER	1	10.0	97	
4-NITROANILINE	3	50.0	82	
ACENAPHTHYLENE	1	10.0	72	
ACENAPHTHENE	1	10.0	76	
ANTHRACENE	2	10.0	94	
BENZO(a)ANTHRACENE	2	10.0	96	
BENZO(a)PYRENE	2	10.0	92	
BENZO(b)FLUORANTHENE	3	10.0	100	
BENZO(g,h,i)PERYLENE	3	10.0	72	
BENZYL ALCOHOL	5	20.0	67	
bis(2-CHLOROETHOXY) METHANE	1	10.0	72	
bis(2-CHLOROETHYL) ETHER (2-CHLOROETHYL ETHE	2	10.0	56	

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

453 272

Analytical Method: 8270-A98

AAB #: A8808763

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: Matrix Spike Blank

Lab Sample ID: A880876301

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received:       

Date Extracted: 30-Oct-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
bis(2-CHLOROISOPROPYL) ETHER	1	10.0	97	
bis(2-ETHYLHEXYL) PHTHALATE	2	10.0	69	
BENZYL BUTYL PHTHALATE	2	10.0	65	
CHRYSENE	2	10.0	99	
DI-n-BUTYL PHTHALATE	2	10.0	85	
DI-n-OCTYL PHTHALATE	2	10.0	68	
DIBENZ(a,h)ANTHRACENE	2	10.0	87	
DIBENZOFURAN	2	10.0	86	
DIETHYL PHTHALATE	2	10.0	91	
DIMETHYL PHTHALATE	1	10.0	94	
FLUORANTHENE	2	10.0	100	
FLUORENE	2	10.0	87	
HEXACHLOROBENZENE	2	10.0	110	
HEXACHLOROBUTADIENE	1	10.0	52	
HEXACHLOROCYCLOPENTADIENE	2	10.0	50	
HEXACHLOROETHANE	0.8	10.0	46	
INDENO(1,2,3-c,d)PYRENE	3	10.0	82	
ISOPHORONE	1	10.0	77	
N-NITROSODIPHENYLAMINE	1	10.0	89	
N-NITROSODI-n-PROPYLAMINE	1	10.0	79	
NAPHTHALENE	1	10.0	65	
NITROBENZENE	2	10.0	92	
PHENANTHRENE	1	10.0	100	
PYRENE	2	10.0	89	
2,4,5-TRICHLOROPHENOL	3	50.0	82	

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

453 273

Analytical Method: 8270-A98

AAB #: A8808763

Lab Name: STL Buffalo

Contract #: F46162495080

Field Sample ID: Matrix Spike Blank

Lab Sample ID: A880876301

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received:       

Date Extracted: 30-Oct-98

Date Analyzed: 23-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
2,4,6-TRICHLOROPHENOL	3	10.0	.83	
2,4-DICHLOROPHENOL	0.8	10.0	96	
2,4-DIMETHYLPHENOL	2	10.0	81	
2,4-DINITROPHENOL	2	50.0	62	
2-CHLOROPHENOL	1	10.0	76	
2-METHYLPHENOL (o-CRESOL)	2	10.0	68	
2-NITROPHENOL	2	10.0	92	
4,6-DINITRO-2-METHYLPHENOL	2	50.0	28	F
4-CHLORO-3-METHYLPHENOL	1	20.0	83	
4-METHYLPHENOL (p-CRESOL)	1	10.0	67	
4-NITROPHENOL	3	50.0	12	F
BENZOIC ACID	7	50.0	75	
PENTACHLOROPHENOL	4	50.0	23	F
PHENOL	2	10.0	29	

Comments:

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453 274 000038

Analytical Method: 8081-A98

AAB #: A8B08733

Lab Name: Recra LabNet

Contract #: F46162495D80

Base/Command: NAS Ft Worth/Offsite Weap

Prime Contractor: The Environmental Company

Field Sample ID

Lab Sample ID

EB-100

A8477207

EB-100

A8477207MS

EB-100

A8477207SD

Comments:

See Case Narrative

I certify this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature:

Name: Kenneth E. Kasperek

Date:

Title: Laboratory Director

453 275

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000039

Analytical Method: 8081-A98AAB #: A8808733Lab Name: Recra LabWetContract #: F46162495080Field Sample ID: E8-100Lab Sample ID: A8477207Matrix: WATER% Solids:       Dilution: 1.00Date Received: 26-Oct-98Date Extracted: 30-Oct-98Date Analyzed: 3-Nov-98Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	0.053	0.350	0.053	U
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	0.069	0.230	0.069	U
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	0.066	0.240	0.066	U
GAMMA BHC (LINDANE)	0.060	0.500	0.060	U
ALPHA-CHLORDANE	0.085	0.800	0.085	U
GAMMA-CHLORDANE	0.063	0.370	0.063	U
p,p'-DDD	0.079	0.500	0.079	U
p,p'-DDE	0.063	0.580	0.063	U
p,p'-DDT	0.066	0.810	0.066	U
ALDRIN	0.025	0.340	0.025	U
DIELDRIN	0.060	0.440	0.060	U
ALPHA ENDOSULFAN	0.085	0.300	0.085	U
BETA ENDOSULFAN	0.069	0.400	0.069	U
ENDOSULFAN SULFATE	0.066	0.350	0.066	U
ENDRIN	0.066	0.390	0.066	U
ENDRIN ALDEHYDE	0.069	0.500	0.069	U
HEPTACHLOR	0.038	0.400	0.038	U
HEPTACHLOR EPOXIDE	0.063	0.320	0.063	U
METHOXYCHLOR	0.079	0.860	0.079	U
TOXAPHENE	0.18	1.0	0.18	U

Comments:

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000040

Analytical Method: 8081-A98

AAB #: A8808733

453 276

Lab Name: Recra LabNet

Contract #: F46162495080

Field Sample ID: EB-100

Lab Sample ID: A8477207MS

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 30-Oct-98

Date Analyzed: 3-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MOL	PQL	Concentration	Qualifier
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	0.11	0.350	1.8	
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	0.14	0.230	1.9	
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	0.13	0.240	1.8	
GAMMA BHC (LINDANE)	0.12	0.500	1.8	
ALPHA-CHLORDANE	0.17	0.800	1.8	
GAMMA-CHLORDANE	0.12	0.370	1.7	
p,p'-DDD	0.16	0.500	2.2	
p,p'-DDE	0.12	0.580	1.8	
p,p'-DDT	0.13	0.810	1.5	
ALDRIN	0.050	0.340	1.6	
DIELDRIN	0.12	0.440	1.9	
ALPHA ENDOSULFAN	0.17	0.300	1.8	
BETA ENDOSULFAN	0.14	0.400	1.9	
ENDOSULFAN SULFATE	0.13	0.350	1.8	
ENDRIN	0.13	0.390	1.8	
ENDRIN ALDEHYDE	0.14	0.500	1.8	
HEPTACHLOR	0.076	0.400	1.4	
HEPTACHLOR EPOXIDE	0.12	0.320	1.8	
METHOXYCHLOR	0.16	0.860	1.8	
TOXAPHENE	0.35	1.0	0.35	U

Comments:

453 277

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000041

Analytical Method: 8081-A98AAB #: A8808733Lab Name: Recre LabWetContract #: F46162495080Field Sample ID: EB-100Lab Sample ID: A847720750Matrix: WATER% Solids:       Dilution: 1.00Date Received: 26-Oct-98Date Extracted: 30-Oct-98Date Analyzed: 3-Nov-98Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	0.11	0.350	1.8	
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	0.14	0.230	2.0	
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	0.13	0.240	1.8	
GAMMA BHC (LINDANE)	0.12	0.500	1.8	
ALPHA-CHLORDANE	0.17	0.800	1.8	
GAMMA-CHLORDANE	0.12	0.370	1.8	
p,p'-DDD	0.16	0.500	2.2	
p,p'-DDE	0.12	0.580	1.7	
p,p'-DDT	0.13	0.810	1.4	
ALDRIN	0.050	0.340	1.6	
DIELDRIN	0.12	0.440	1.9	
ALPHA ENDOSULFAN	0.17	0.300	1.9	
BETA ENDOSULFAN	0.14	0.400	1.9	
ENDOSULFAN SULFATE	0.13	0.350	1.8	
ENDRIN	0.13	0.390	1.9	
ENDRIN ALDEHYDE	0.14	0.500	1.8	
HEPTACHLOR	0.076	0.400	1.6	
HEPTACHLOR EPOXIDE	0.12	0.320	1.9	
METHOXYCHLOR	0.16	0.860	1.8	
TOXAPHENE	0.35	1.0	0.35	U

Comments:

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

453 278

Analytical Method: 8081-A98

AAB #: A8808733

Lab Name: Recre LabNet

Contract #: F46162495080

Field Sample ID: Matrix Spike Blank

Lab Sample ID: A880873301

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received:       

Date Extracted: 30-Oct-98

Date Analyzed: 3-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
ALPHA BHC (ALPHA HEXACHLOROCYCLOHEXANE)	0.053	0.350	0.90	
BETA BHC (BETA HEXACHLOROCYCLOHEXANE)	0.069	0.230	0.97	
DELTA BHC (DELTA HEXACHLOROCYCLOHEXANE)	0.066	0.240	0.87	
GAMMA BHC (LINDANE)	0.060	0.500	0.90	
ALPHA-CHLORDANE	0.085	0.800	0.88	
GAMMA-CHLORDANE	0.063	0.370	0.89	
p,p'-DDD	0.079	0.500	1.1	
p,p'-DDE	0.063	0.580	0.97	
p,p'-DDT	0.066	0.810	0.82	
ALDRIN	0.025	0.340	0.65	
DIELDRIN	0.060	0.440	0.96	
ALPHA ENDOSULFAN	0.085	0.300	0.92	
BETA ENDOSULFAN	0.069	0.400	0.95	
ENDOSULFAN SULFATE	0.066	0.350	0.91	
ENDRIN	0.066	0.390	0.92	
ENDRIN ALDEHYDE	0.069	0.500	0.88	
HEPTACHLOR	0.038	0.400	0.72	
HEPTACHLOR EPOXIDE	0.063	0.320	0.92	
METHOXYCHLOR	0.079	0.860	0.88	
TOXAPHENE	0.18	1.0	0.18	U

Comments:



453 279

AFCEE  
ORGANIC ANALYSES DATA PACKAGE

000075

Analytical Method: 8082AAB #: A8B08734Lab Name: Recra LabNetContract #: F46162495D80Base/Command: NAS Ft Worth/Offsite WeapPrime Contractor: The Environmental Company

Field Sample ID

Lab Sample ID

EB-100A8477207

Comments:

See Case Narrative

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Signature: Name: Kenneth E. KasperekDate: 11/26/99Title: Laboratory Director

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

453 280

000076

Analytical Method: 8082

AAB #: A8808734

Lab Name: Recre LabNet

Contract #: F46162495D80

Field Sample ID: E8-100

Lab Sample ID: AB477207

Matrix: WATER

% Solids:       

Dilution: 1.00

Date Received: 26-Oct-98

Date Extracted: 30-Oct-98

Date Analyzed: 4-Nov-98

Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
PCB-1016 (AROCHLOR 1016)	0.13	1.0	0.13	U
PCB-1221 (AROCHLOR 1221)	0.072	1.0	0.072	U
PCB-1232 (AROCHLOR 1232)	0.044	1.0	0.044	U
PCB-1242 (AROCHLOR 1242)	0.28	1.0	0.28	U
PCB-1248 (AROCHLOR 1248)	0.19	1.0	0.19	U
PCB-1254 (AROCHLOR 1254)	0.32	1.0	0.32	U
PCB-1260 (AROCHLOR 1260)	0.088	1.0	0.088	U

Comments:

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453 281

AFCEE  
ORGANIC ANALYSES DATA SHEET 2  
RESULTS

000077

Analytical Method: 8082AAB #: A8808734Lab Name: Recre LabNetContract #: F46162495080Field Sample ID: Matrix Spike BlankLab Sample ID: A880873401Matrix: WATER% Solids:       Dilution: 1.00Date Received:       Date Extracted: 30-Oct-98Date Analyzed: 4-Nov-98Concentration Units (ug/L or mg/kg dry weight): UG/L

Analyte	MDL	PQL	Concentration	Qualifier
PCB-1016 (AROCHLOR 1016)	0.13	1.0	4.8	
PCB-1221 (AROCHLOR 1221)	0.072	1.0	0.072	U
PCB-1232 (AROCHLOR 1232)	0.044	1.0	0.044	U
PCB-1242 (AROCHLOR 1242)	0.28	1.0	0.28	U
PCB-1248 (AROCHLOR 1248)	0.19	1.0	0.19	U
PCB-1254 (AROCHLOR 1254)	0.32	1.0	0.32	U
PCB-1260 (AROCHLOR 1260)	0.088	1.0	5.2	

Comments:  

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453 282

Analytical Method: 6010-A98AAB #: A8B08823Lab Name: STL BuffaloContract #: F46162495D80Base/Command: NAS Ft Worth/Offsite WeapPrime Contractor: The Environmental Com

Field Sample ID

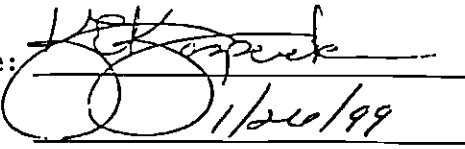
Lab Sample ID

EB-100A8477207

Comments:

See Case Narrative

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Signature: Name: Kenneth E. KasparekDate: 11/20/99Title: Laboratory Director

453 283

INORGANIC ANALYSES DATA SHEET 2  
RESULTS

000309

Analytical Method: 6010-A98AAB #: A8808823Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: E8-100Lab Sample ID: A8477207Matrix: WATER% Solids: 0.0Dilution: 1.00Date Received: 26-Oct-98Date Extracted: 2-Nov-98Date Analyzed: 10-Nov-98Concentration Units (ug/L or mg/kg dry weight): MG/L

Analyte	MDL	PQL	Concentration	Qualifier
ALUMINUM	0.077	0.050	0.077	U
MANGANESE	0.0012	0.0050	0.0012	U
ZINC	0.013	0.020	0.016	F
ANTIMONY	0.0061	0.010	0.0061	U
ARSENIC	0.0085	0.010	0.0085	U
BARIUM	0.0010	0.0050	0.0083	
BERYLLIUM	0.0012	0.0010	0.0012	U
CADMIUM	0.00054	0.0010	0.00054	U
CALCIUM	0.11	0.200	0.35	
CHROMIUM	0.0027	0.0050	0.0027	U
COBALT	0.0011	0.0020	0.0011	U
COPPER	0.0027	0.0050	0.0027	U
IRON	0.065	0.050	0.065	U
LEAD	0.030	0.010	0.030	U
MAGNESIUM	0.088	0.050	0.088	U
MOLYBDENUM	0.0038	0.0050	0.012	
NICKEL	0.0018	0.0050	0.0018	U
POTASSIUM	0.25	0.200	0.25	U
SELENIUM	0.011	0.010	0.011	U
SILVER	0.0015	0.0050	0.0015	U
SODIUM	0.84	0.500	0.93	
THALLIUM	0.0060	0.020	0.0060	U
VANADIUM	0.0013	0.0050	0.0013	U

Comments:

Analytical Method: 7470-A98AAB #: A8B08651Lab Name: STL BuffaloContract #: F46162495D80Base/Command: NAS Ft Worth/Offsite WeapPrime Contractor: The Environmental Com

Field Sample ID

Lab Sample ID

EB-100A8477207

Comments:

See Case Narrative

I certify this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature:

Name: Kenneth E. Kasperek

Date:

Title: Laboratory Director

000346

Analytical Method: 7470-A98AAB #: A8808651Lab Name: STL BuffaloContract #: F46162495080Field Sample ID: EB-100Lab Sample ID: A8477207Matrix: WATER% Solids: 0.0Dilution: 1.00Date Received: 26-Oct-98

Date Extracted: \_\_\_\_\_

Date Analyzed: 29-Oct-98Concentration Units (ug/L or mg/kg dry weight): MG/L

Analyte	MDL	PQL	Concentration	Qualifier
MERCURY	0.00030	0.0010	0.00030	U

Comments:  
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\_\_\_\_\_  
\_\_\_\_\_

**TAB**

*K*

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**APPENDIX K**

**GRAIN SIZE ANALYSES**



# Inchcape Testing Services

## Environmental Laboratories

1089 E. Collins Blvd.  
Richardson, TX 75081  
Tel. 972-238-5591  
Fax 972-238-5592

453 288

DATE RECEIVED : 25-OCT-1996

REPORT NUMBER : D96-12170-2

REPORT DATE :

SAMPLE SUBMITTED BY : The Environmental Co.  
ADDRESS : P.O. Box 5127  
: Charlottesville, Virginia 22905  
ATTENTION : Mr. Bob Duffner

SAMPLE MATRIX : Soil for IRPIMS  
ID MARKS : FC-SB16-02#  
: N1#(0-0')  
PROJECT : 3101 Fam Camp  
DATE SAMPLED : 25-OCT-1996  
ANALYSIS METHOD : ASTM D421/D422 /1  
ANALYZED BY : KRH  
ANALYZED ON : 3-NOV-1996  
QC BATCH NO : 11196

GRADATION REPORT		
TEST REQUESTED	DETECTION LIMIT	RESULTS
Gravel & Coarse Sand (> 2.00 mm)	0.1 %	< 0.1 %
Medium & Fine Sand (0.075 to 2.00 mm)	0.1 %	17.9 %
Silt (0.005 to 0.075 mm)	0.1 %	58.1 %
Clay/Colloids (< 0.005 mm)	0.1 %	24.0 %

2446

**TAB**

L

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**APPENDIX L**

453 230

**QUALITY ASSURANCE/QUALITY CONTROL SAMPLE SUMMARY**

## Quality Assurance/Quality Control Sample Summary

Field Sample <sup>a</sup>	Location	Equipment Blank <sup>a</sup>	Trip Blank <sup>a</sup>	Method Blank <sup>b</sup>	Ambient Blank <sup>a</sup>
FC-SB-116-01 FC-SB-117-01 FC-SB-118-01 FC-SB-119-01 FC-SB-119-02 FC-SB-120-01	Family Camping Area	FC-WQ-EB-100	FC-WQ-TB-100	A9B0058801 (soil)  A9B0059401 (liquid)	FC-WQ-AB-100

a: Field Sample ID number

b: Lab Sample ID number

Note: Matrix Spike/Matrix Duplicate analyses completed on sample FC-SB-119-01.

**TAB**

*M*

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APPENDIX M

INVESTIGATION DERIVED WASTE MANAGEMENT  
DOCUMENTATION

# TEXAS

NON-HAZARDOUS SPECIAL WASTE MANIFEST

No. 500636

453 294

## GENERATOR

IER NAME Air Force Base Conversion Agency GENERATING LOCATION Air Force Base Conversion Agency  
 PRESS 6550 White Settlement Rd. ADDRESS 6550 White Settlement Rd.  
Fort Worth, TX 76114-3520 Fort Worth, TX 76114-3520

JNE NO. 817 7318973

STATE GENERATOR ID NUMBER 65004

T.N.R.C.C.	DESCRIPTION OF WASTE	QUANTITY	UNITS
	Investigative Derived Waste Water	00002	0

WASTE CODE TX 759 9 80826 257640 *Aut*

T.N.R.C.C.	DESCRIPTION OF WASTE	
<div style="display: flex; justify-content: space-between;"> <div style="width: 100px;"> <div style="border: 1px solid black; width: 20px; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-bottom: 2px;"></div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-bottom: 2px;"></div> </div> <div style="width: 400px;">Investigative Derived Waste Soil</div> <div style="width: 100px;"> <div style="border: 1px solid black; width: 20px; height: 20px; margin-bottom: 2px; text-align: center;">A</div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-bottom: 2px; text-align: center;">0</div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-bottom: 2px; text-align: center;">0</div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-bottom: 2px; text-align: center;">1</div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-bottom: 2px; text-align: center;">0</div> <div style="border: 1px solid black; width: 20px; height: 20px; margin-bottom: 2px; text-align: center;">D</div> </div> </div>		

WASTE CODE TX 759 980826 257641

T.N.R.C.C.					DESCRIPTION OF WASTE				

[illegible]

GENERATORS CERTIFICATION: I hereby certify that the above named material is not a hazardous waste as defined by 40 CFR Part 261 or that applicable regulation, has been properly described, classified and packaged, and is in proper condition for transportation according to applicable regulations, AND, if the waste is a treatment residue of a previously regulated hazardous waste subject to the Land Disposal Restrictions, I certify and warrant that the waste has been treated in accordance with the requirements of 40 CFR Part 265 and is no longer a hazardous waste as defined by 40 CFR Part 261.

Alan Flolo  
CREATOR AUTHORIZED AGENT NAME

Dean W. Frow

0	9	0	2	9	7
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SHIPMENT DATE

## TRANSPORTER

UCK NO. TID

PHONE NO. 972 446 0200

REPORTER NAME CASTRO VTS

DRIVER NAME (PRINT) DANNY MACKIN

ADDRESS 159 W ROCK ISLAND RD

VEHICLE LICENSE NO. STATE R171734

GRAND PRAIRIE TX

STATE TRANSPORTER ID NO. 40041

HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL WAS PICKED UP AT THE  
GENERATOR SITE LISTED ABOVE /

WHEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL WAS DELIVERED  
WITHIN IT INCIDENT TO THE DESTINATION LISTED BELOW.

090297

090297

**DESTINATION**

ITE NAME 48 400 A 100 70000

DORESS

BROWNING PERKINS - ITASCA GARDENS CONDELL  
ROUTE 1 BOX 23 K  
ITASCA, TEXAS 76055

HEREBY CERTIFY THAT THE ABOVE NAMED MATERIAL HAS BEEN ACCEPTED AND TO THE BEST OF MY KNOWLEDGE THE FOREGOING IS TRUE AND ACCURATE.

R-I Daniel Young  
AUTHORIZED AGENT

TNRCC #746-B      EPA # D059804419

0	9	0	2	9	?
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**FOODIES ONLY THROUGH B.F. WARE CONTRACT**

DESTINATION RETAINED



100-78071 (1900)



**FINAL PAGE**

**ADMINISTRATIVE RECORD**

**FINAL PAGE**